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Bird-Lore

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FRANK M. CHAPMAN

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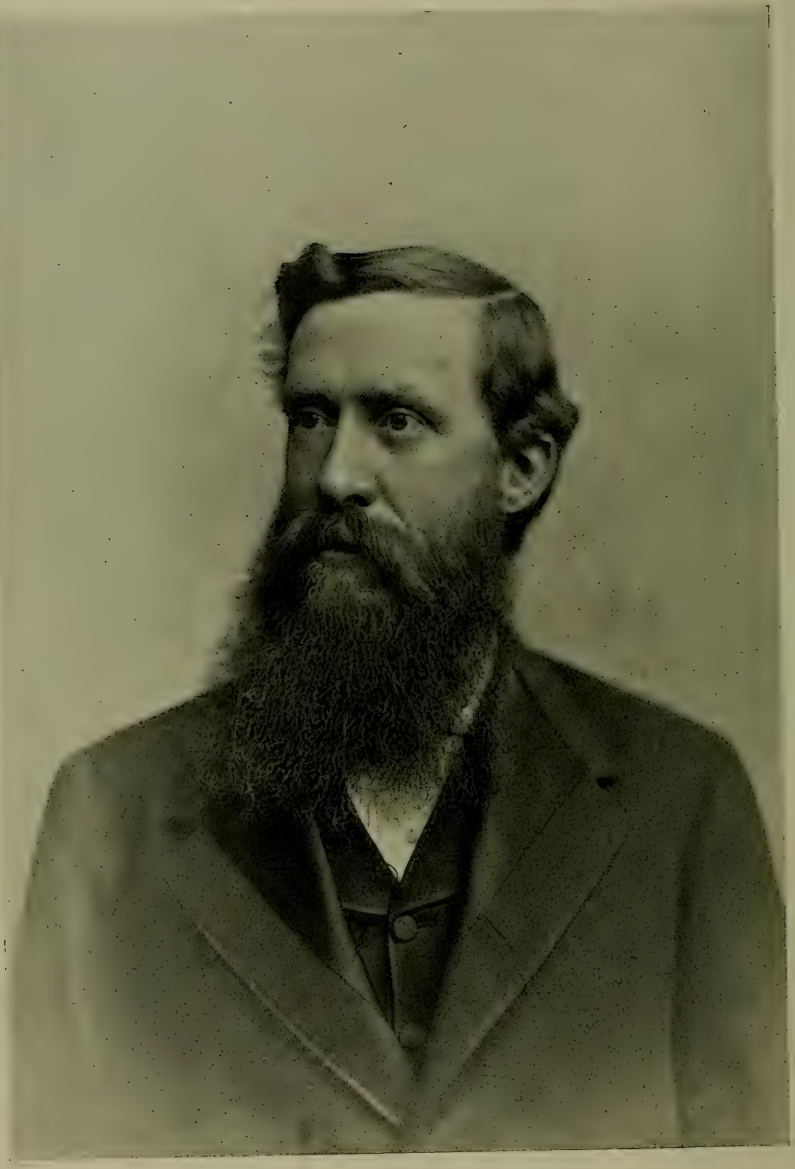


Sincerely yours,
Elliott Cowes

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. II FEBRUARY, 1900 No. 1

Elliott Coues

WITH extreme regret we learn of the death of Dr. Elliott Coues, at Johns Hopkins Hospital, Baltimore, on Christmas Day, after a grave operation performed December 6. Dr. Coues died in the harness, as a more or less direct result from overwork, after a life of such phenomenal activity in the fields of science and literature that we have space for little more than an outline of his career.

Elliott Coues was born at Portsmouth, N. H., on September 9, 1842. In 1853 his family moved to Washington, D. C., where he was educated at the Jesuit Seminary and Columbian University, graduating from the latter in 1861 as A.B., and in 1863 as M.D. In this year he was appointed assistant surgeon in the United States Army and ordered to Arizona. After ten years' service at various posts he accepted, in 1873, the position of surgeon and naturalist of the United States Northern Boundary Survey from the Lake of the Woods to the Rocky mountains. After two years' field work he returned to Washington to prepare his report, on the completion of which, in 1876, he was made secretary and naturalist to the United States Geological and Geographical Survey of the Territories, a position he held for the ensuing four years, the period of his greatest scientific activity. In 1877 he was elected to fill the Chair of Anatomy in the National Medical College in Washington, a professorship he held for ten years.

In 1880 Dr. Coues was ordered to the western frontier, but he had become so deeply engaged in scientific work that he resigned from the army and returned to Washington, where he resided for the remainder of his life.

Doctor Coues' first contribution to ornithology was 'A Monograph of the Tringeæ of North America,' a paper of thirty-five pages, published in the proceedings of the Philadelphia Academy of Sciences for

1861. The same volume contained his 'Notes on the Ornithology of Labrador,' gathered during a summer excursion in 1860.

These papers, written at the age of eighteen, might appear to-day, in spite of their author's youth and the great advances which have occurred in the science of ornithology, as creditable productions of an experienced ornithologist. Without attempting to present a list of the rapidly increasing number of Doctor Coues' ornithological papers, we may state that from 1861 to 1884 his contributions to the literature of ornithology numbered about 350 titles, including many extended papers and some eight separately published volumes.

The last named date concluded Doctor Coues' activity in ornithology for an interval of about twelve years, a period in which he was largely occupied with editorial work on the Century Dictionary, and with the production of fully annotated editions of the travels of Lewis and Clarke, Zebulon Pike, and other early explorers; but about 1895 Doctor Coues manifested a new interest in ornithology, and at that time began to prepare a third edition of his 'Key to North American Birds,' and it affords us great satisfaction to be able to say, on the authority of Mr. Dana Estes, the publisher of this work, that the manuscript was ready for the press several weeks before Dr. Coues' death.

Dr. Coues' influence in ornithology was first widely felt on the publication of his 'Key to North American Birds,' in 1872, which, as a popular and authoritative handbook, was replaced only by its second edition, a practically new work issued in 1884,* and differing from the current reprint only through the absence of certain appendices. Measured by results, this was Dr. Coues' most valuable contribution to the science of ornithology; the work of a great student and equally great teacher, made eloquent by its author's marvelous powers of expression. It is, beyond comparison, the best book on general and systematic ornithology ever published, and has contributed more to the advance of American ornithology than any other work since the time of Audubon.

Dr. Coues' distinguishing characteristic, as a man, was a virility of mind, which forced his powers to the utmost, resulting in his enormous productivity, and, eventually, his premature death.

As an ornithologist, he was eminent as an anatomist, systematist, nomenclator, bibliographer, and biographer. Doubtless his peers exist in any of these branches of the science of birds, but one searches in vain for another individual who might claim to be his equal in all; and this deliberate estimate of his rank places Elliott Coues foremost among ornithologists. — F. M. C.

*The accompanying photograph of Dr. Coues was taken just prior to the publication of this work, and represents him in his prime.

Concerning Birds' Tongues

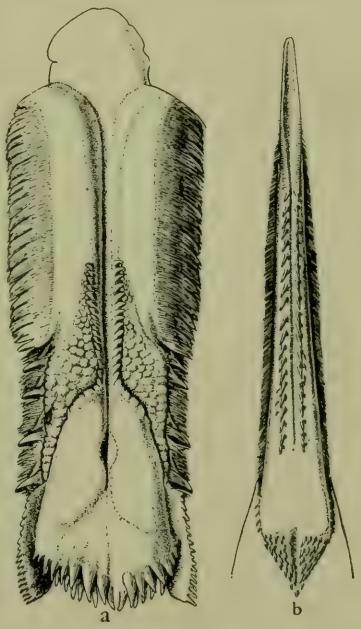
BY FREDERIC A. LUCAS

Curator of Comparative Anatomy, United States National Museum

Illustrated by the author

THE FLICKER

THE tongue of man may be an unruly member, but the tongues of his furred and feathered relatives are under much better control and, in the absence of hands, serve many useful purposes. Every one knows how the cat laps milk, washes her face and combs her hair, all with her tongue ; every one has seen a Duck investigating a puddle, and some have seen a Flicker probing the depths of an ant-hill. It may have occurred to the observer that in each case there must be some device whereby the tongue is fitted for the work to be done, and it is plain that the tongue of the Duck should be quite different from that of the Woodpecker, since they are used for very different purposes. But unless one has actually investigated, he might not suspect how very unlike their tongues are, nor how complicated is that of the common Duck, being, as it is, a sort of combined rake and strainer. Neither, without some little study, would one suspect the many kinds of tongues found among birds and the curious modifications they present.



TONGUES OF RINGED-NECKED DUCK (*a*), RED-BREASTED MERGANSER (*b*).

All, or nearly all, of these modifications probably have more or less to do with obtaining or manipulating food, although, to tell the truth, it has to be assumed that this is the case more from the apparent fitness of the organ for that purpose than from any actual observations on the subject. Not that every bird has a remarkable tongue, for the great majority of our small perchers have rather commonplace tongues adapted for general rather than special purposes, and therefore constructed on the same general plan. A tongue of this type is rather thin, slightly hollowed, and frayed out a little towards the tip, like the tongue of the Connecticut Warbler, which may be taken as the type of tongue possessed by the great majority of Warblers and

small birds whose diet consists largely of insects. Strictly insectivorous birds, such as Swifts, Swallows and Goatsuckers, have a somewhat different tongue,—soft, fleshy, and beset, particularly about the base, with numerous small backwardly directed points, whose office is apparently to facilitate the downward career of food. That these birds, so different in structure, as birds go, and members of families so far apart in the bird world, should have similar tongues, seems to indicate that the shape of the tongue bears a relation to the character of the food, and gives no hint of corresponding relationship between the birds themselves.

CROSSBILL AND HORNED LARK

The more exclusively granivorous birds have another style of tongue,—smooth, thick, fleshy and but little frayed at the tip,—a tongue which no doubt is useful for holding and husking minute seeds, while the little scoop-like tongues of Goldfinches and Crossbills must be still more serviceable for such purposes.

THE LITTLE SCOOP OF THE GOLDFINCH

The tongue of our common Goldfinch is furthermore beset about its edge with little hard points, and while these would add to its usefulness in gathering the fine seeds of thistles, yet, as thistles are only available for a part of the year, it is hardly probable that such a special modification is for such limited use, this being one of the cases where it is easier to make the theory fit part of the facts than it is to make the facts conform to the theory. My friend Mr. William Palmer has, however, offered a suggestion that seems to fit the case pretty well, calling attention to the fine, almost pasty condition of food found in the gullet of the Goldfinch, and suggesting that the small, hard points play a part in grinding up little seeds and reducing them to pulp.

If we go back to the simple tongue with which we started, stretch it out and feather it more deeply, we will have the pattern of tongue that prevails among the Orioles; or if we curve the thin edges upwards and inwards until they meet, we will have a little tube, such as is found among the Sunbirds and Honey-suckers. In order that such a tongue may really suck, it is, of course, necessary to create a vacuum at its back, and the muscles of the tongue are so arranged that this can be done, the back of the tongue being depressed, while the front or middle portion is in contact with the roof of the mouth. Some of the American Honey-creepers (*Cœreba*), for example, have an interesting modification of this suctorial tongue, the front portion being deeply cleft and the thin edges split and rolled inward to form two hollow brushes. These may either dip up liquid, or draw it inward by capillary attraction, while they are

certainly useful for catching minute insects. The tongues of some of the Australian and Hawaiian Honey-suckers are even more complicated, ending in four little spiral brushes instead of two.

THE EVOLUTION OF THE BRUSHY TONGUE

a, Connecticut Warbler; *b*, Australian Honey-sucker; *c*, American Honey-creeper; *d*, Australian Friar Bird; *e*, Tip of Tongue of Honey-creeper

Still another kind of tubular tongue is found in the Ruby-throated Hummingbird, or, for that matter in all Hummingbirds so far examined, each half of the very long and very deeply cleft tongue being edged on the outer side with the thinnest imaginable membrane, which curls inward to form a delicate tube..

Now, since the Honey-creepers, the Honey-suckers and the Hummingbirds all have tubular tongues, it is natural to suppose that they use them for sucking the nectar of flowers, and yet, so far as actual knowledge goes, the food of these birds consists principally of minute insects and spiders, which goes to show that in matters pertaining to natural history a little observation is much better than a great deal of theory.

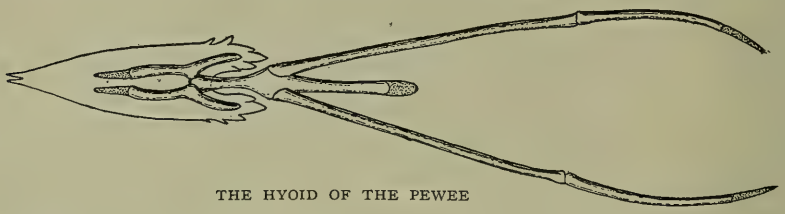
THE CHICKADEE'S FORK

Theory may, perhaps, be right in ascribing the little pitchfork the Chickadee carries by way of a tongue to the fact that such a thing would be useful for prying insects and their eggs out of chinks in the bark of trees, but it is difficult even for theory to explain why some birds have just such tongues as they do: why, for example, the big-billed Toucan should have a tongue very much like a long, loose feather, or that of the Penguin should be made up of long spines. Perhaps when the habits of these birds are better known we may see the reasons for the shapes of their tongues, and the spiny

THE PENGUIN'S RAKE

tongue of the Penguin may be very serviceable for catching or holding small crustaceans and fishes.

Before going farther it may be well to glance for a moment at the seven or eight little bones forming the hyoid, or framework on which the tongue is built, and to which are attached the muscles that move it. The two foremost of these little bones, often so closely



THE HYOID OF THE PEWEE

united as to appear one, are imbedded in the body of the tongue itself, together with the single bone to which they are attached, while the hindmost pair curl up around the back of the skull, and from the varying proportions of these bones we can tell something of the manner in which and extent to which the tongue is used. If the foremost bones are long the tongue is long, if they are stout the tongue is thick and fleshy, as in the Ducks, and if they are almost wanting, as in the Cormorants, then there is no tongue to speak of. The hindmost bones determine the extent to which the tongue can be protruded: if they are long the tongue is very extensile, if they are short it is but little so. In the Hummingbirds these epibranchials, as they are called, run back over the skull, meet one another, and extend forward side by side to the very base of the bill. It might be thought that this marked the utmost limit of length attainable, but some of the Woodpeckers manage to exceed this, sometimes, as in the Downy Woodpecker, by curling the ends of the

THE SPEAR OF THE HAIRY WOODPECKER

THE ARROW OF THE SOLOMON ISLANDER

hyoid around the right eyeball, and sometimes, as in the Flicker, by letting the bones run forward into the nostril and thence to the tip of the bill. The Woodpeckers thus obtain the longest and most extensible tongues found among birds, and, as these tongues are used

for spearing grubs in their burrows or coaxing ants out of their nests, the tips are peculiarly modified, as well as the hindmost part of the tongue. In such active grub-hunting birds as the Hairy and Downy Woodpeckers the tongue tip is made into a many-barbed spear, for all the world like the spears and arrrows in use among tha natives of the Solomon Islands.

The Flicker, on the other hand, which uses its tongue like a probe, has only one or two little barbs, at the very tip, and relies mainly on gluing ants and other small game to his tongue by the very viscid saliva secreted by the large salivary glands. All Woodpeckers, however, with which we are acquainted have the upper surface of the tongue thickly beset with minute, horny points, directed backward. The Sap-sucker has no barbs on the tip of the tongue, but instead a little brush; moreover, this bird has the shortest, least extensible tongue of all Woodpeckers, and must long ago have given up spearing grubs for a living. It is something of a question whether the little brush is used for swabbing up sap, or whether it serves to direct the sap from the little pits where it accumulates into the bird's mouth. The former use seems the most probable, as those who have watched the Sap-suckers closely tell us that the tongue is moved rapidly backward and forward.

THE BRUSH OF THE SAP-SUCKER

From what has just been said, it can readily be seen that among Woodpeckers, the relations between food and tongue are very clear, and we may be pretty sure that whenever we come upon an odd-appearing tongue there is, did we but know it, some trick of taking or manipulating food to account for it. And it is suggested that the readers of BIRD-LORE improve every opportunity to carefully observe the manner in which even the commonest birds take their food, in order to throw all possible light upon the reasons for the many shapes of birds' tongues.

A Note on the Economic Value of Gulls

BY FRANK M. CHAPMAN

With photographs from nature by the author

IF the inhabitants of our Gulf States had believed that Egrets were as valuable to them alive, as they *know* Turkey Buzzardsa nd Black Vultures to be, they would, doubtless, never have permitted their destruction.

Similarly, we think that if the services rendered by Gulls were fully appreciated, the birds would be protected by a sentiment as strong as that which preserves the Buzzards.

It is possible that the day may come when a bird's beauty will be a sufficient reason for its existence ; but in the meantime we must base our appeals for bird protection on more material grounds if we would hope to have them effectual.

In pleading the cause of the Gulls, therefore, we will not mention the accompanying picture of the birds with their young, beautiful as it is,

KITTIWAKES AND YOUNG ON NESTS

Bird Rock, Gulf St. Lawrence, July 26, 1898

for we realize that with the millinery collector it would only create a desire to visit a locality were Gulls are evidently so tame that they could be killed with ease ; but we would call particular attention to the apparently uninteresting photograph which follows it.

This photograph was made in the lower bay of New York harbor on

February 20, 1896, under conditions which prohibited technical success. It serves very well, however, to give an idea of the number of Gulls—Herring Gulls with a comparatively small number of Black-backs—which at that time were attracted to the vicinity by the refuse which each day at high tide was dumped upon the waters by the scows of the street-cleaning department. The Gulls had gathered to feed upon the animal and vegetable matter deposited. On this occasion eleven scows were dumping, and over the wake of each one fluttered a throng of birds similar to that shown in the picture.

No more impressive object lesson in the value of Gulls as scavengers could be imagined; and no one convinced of the services rendered

GULLS OVER WAKE OF GARBAGE SCOW IN LOWER NEW YORK BAY

by these birds throughout our coast-line and on many of the interior lakes and rivers, could, for a moment, doubt the importance of protecting them.

But in place of Gull protection we are having Gull destruction. Gulls, in whole or part, have become fashionable, and Gulls' wings, breasts, heads, bodies and entire skins are worn on hats in countless numbers.

It is stated that in a fire which destroyed the millinery taxidermist establishment of William L. Wilson, at Wantagh, L. I., on November 22, 1899, no less than 10,000 Gulls' skins were consumed; and these figures doubtless represent only a fraction of the number handled during the year.

If the birds remain fashionable the demand for them will, of course, be supplied, with a resulting loss to man which, perhaps, we may realize when it is too late.

For Teachers and Students

'Bird-Lore's' Advisory Council

THE plan for an 'Advisory Council,' announced in our last issue, is realized by the publication below of the names and addresses of the ornithologists who have consented to assist students by responding to their requests for information.

The list, as will be seen, contains the names of many of the leading ornithologists of the country, and in becoming a medium whereby their personal advice is made available to students, we feel that BIRD-LORE has rendered an invaluable service to the science of ornithology.—ED.

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Ontario, Western.—T. McIlwraith, Hamilton, Ont.
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C. B. Cory, 160 Boylston street, Boston, Mass.

On Methods in Teaching Ornithology at Oberlin College

BY LYNDS JONES

Instructor in Zoölogy in Oberlin College

THIS article has not to do with ideal methods in teaching people about birds. Ideal methods presuppose ideal conditions, which cannot be expected if the subject be taught as a part of a large college curriculum and as a part of the teacher's work. The subjoined remarks will therefore be rather an explanation of the methods employed under the conditions named than as a statement of what the writer hopes that he may some time be able to realize.

There are taught, in Oberlin College, three courses in ornithology. The beginning course, which meets for recitation three times a week during the spring term, aims at a general introduction to the subject, with special stress laid upon field familiarity with a limited number of the more common local species as a basis for further study. The advanced course, with two meetings a week for recitation, undertakes economic and philosophic studies, which require original field work. A course is also offered in the summer school, which meets five times a week for eight weeks, designed for teachers and others who have little or no previous acquaintance with birds, but who desire to teach the subject to children. The methods employed in each of these courses may now be discussed separately.

Until the advent of Mr. Frank M. Chapman's 'Handbook' made the use of a text-book possible, the work in the beginning course was wholly given in lectures. With that book as a text for the systematic part of the work, a much larger opportunity for lectures upon habits and field characteristics was afforded.

This course is introduced by a brief history of ornithology and a statement of present day activities, showing where effort may be profitably directed. This brief history is followed by a careful scrutiny of the content of ornithology, indicating the bird's place in nature structurally, and its economic importance. After a brief notice of migration and distribution, the real subject is entered upon in the study of the orders as a basis for the study of species. A thorough drill upon the names and characteristics of each of the seventeen orders of North American birds is followed by a somewhat less rigorous drill upon the minor divisions of the orders as illustrated by the common local species of each, except the Passerine birds, which

are reserved for special study later. This drill upon mere names and characteristics is accompanied by the exhibition of specimens, by field study where possible, and by personal reminiscences of habits in general, but even then savors of mathematical formulæ, and is little to the taste of most students. One may ask why it might not then better be omitted. It is the drudgery of the subject, and must therefore come some time. Without a thorough knowledge of the orders, which form the most natural divisions of the whole class of birds, artificial keys and other helps would be well nigh out of the question. Experience has shown that this drill is the best preparation for the work that follows.

In the study of the Passerine group attention is concentrated upon habits and characteristics of the common local species of each family, using these species to illustrate and fix the family characteristics. In this study special stress is laid upon peculiarities of color, habits, environment and song, as aids to the determination of the species. Here field work is essential to any correct knowledge of the species, and much time and effort is expended in the field. This field work is the surest test of the student's ornithological ability and perseverance. Most students enter upon the work with a hazy picture or image of a generalized bird and with a few generalized bird-songs in mind, without the slightest conception of the largeness of the subject and of the training necessary before the panorama of passing forms and the medley of voices can be resolved into the individualities of the bird world. It is therefore a common experience for even the more able students to definitely decide, after the first few trips afield, that there is nothing in the subject for them! I am glad to put on record that in every case where the student has stuck to the work to the end he has come out of it an enthusiastic ornithologist. It must needs be so.

The field work begins during the first week of the term — about April 10 — and continues to the end. As an aid to learning the names of the birds, each student keeps a 'day-book' of the work in which the vernacular names of the birds seen are correctly written, and a field-book in which the names of all the birds seen on the individual trips are written, this constituting the list for the day. This mechanical repetition of the names is a great help in fixing them in the memory.

The value of the field work to the individual student is in inverse ratio to the number of persons participating in any one trip, both on account of numbers and on account of divided attention. The difficulty can be partly overcome by divisions and subdivisions of the class to the limit of time and endurance of the

teacher, by the kindly aid of some self-sacrificing ornithological friend, and by encouraging individual work in the few who can profit by it. But even with all these aids it is a real difficulty, which grows with the class and with the growing interest of the public. We may be heartily glad that such difficulties arise now, indicating, as they do, that the time is approaching when the force of those capable of giving instruction will be sufficient to meet the demand.

During this term of study the field work is largely done during the early morning hours — 4:30 to 6:30 A. M. It is not only the best time of the day to study birds, but is practically the only time available, with the other work which must be done. Either one forenoon or one afternoon each week is usually available for class field work, and this time is utilized by any who find the early morning work too debilitating. But it is a poor substitute. Better field work is done if the men and women do their work at separate times. Strange, but true! The teacher reserves two mornings out of the six for private field work in preparation for the class field work.

With such a limit of time made necessary by the sub-divisions of the class, field study taken alone could not accomplish the task of teaching the student many species. As a further aid, skins of about ninety species are identified by each student, with the book in hand. Here the importance of exactness in description of color, form and proportions are brought into prominence, and many wrong impressions corrected. The bird 'in hand' is a revelation of things unsuspected in the makeup of a bird. Some one will ask, Where did you get all those skins? They are a damaged lot that was about to be thrown away as unfit for the cabinet, but serve the purposes of identification admirably. Thus no demand was created for the slaughter of more birds. None have ever been killed to furnish skins for this work. The finished list of skins identified comprises the name of the order, family, genus, species, and sub-species, if such, and the vernacular name.

In the two-hour advanced course the student is introduced to the many problems which the subject affords, with suggestions of methods for their solution. Topics are assigned for special original work involving the use of literature as well as original field work, and the results obtained are presented to the class in a finished paper. The Story of the Birds, by James Newton Baskett, published by D. Appleton & Co., is used as a guide to the class-room work, supplemented by lectures and outside reading. Where possible each student studies the breeding habits of some one or more species by watching the process from the beginning of the nest to the time when the young

are able to leave it. Some attention is also given to the study of pterylosis and its bearing upon classification. While the field work is largely individual and independent of the teacher, the students are given just enough personal supervision to minimize mistakes in identification and observation.

The course offered in the summer school is arranged for 22 hours' work each week for the term of eight weeks, a large part of that time being spent in the field with the birds, the sole object of the field work being to acquaint the student with the more common local species by a system of comparisons of the different species. Hence, all field work must be done under the personal supervision of the teacher until each student has acquired a speaking acquaintance with at least thirty species, which requires rather more than two-thirds of the term for the majority of the class. At the close of this period the average student will be fairly familiar with fifty species, and the most apt with seventy, with twenty others on his list seen once or oftener.

Field work, without a rigid system of note keeping, would result in careless work and loss of time with a class of students. It is undoubtedly drudgery to most, if not all, but it cannot be avoided. There is a golden mean between packing the note-book and trying to pack the memory, but one could not expect the beginner to find it. During the first week of the summer study the note-book will grow rapidly with descriptions of pattern of colors, song, flight, habits, food, comparisons with other similar species, and anything else which will help in retaining the distinguishing features of the species, *written on the spot*, in a scratch book. At the close of the day these are copied into a permanent journal of the day, and the names of all the species seen are entered into a daily "check book'—a quadrille-ruled note-book dated at the top, with a line for weather, one for start and return, one for locality where the work was done. In the squares, on a level with the name of each species, and under the date, abbreviations are entered indicating where the species was seen (town, field, woods, pasture, roadside, pond or stream, etc.), about how many seen, whether singing or silent, whether molting or not. For a time the local geographical distribution of each species is given special attention, so that time may not be wasted in looking in impossible places for certain species.

During the last two weeks of the term of study, the students are expected to pursue their field work largely independent of the teacher for the purpose of developing an individual method of study. It is unfortunate that this part of the work must come at a time when molting is well under way, so that perplexing patterns of dress

are frequently met with, while few or imperfect songs are heard. But it is excellent drill!

The museum affords a perpetual refuge for the confused ones, and is often a great help in straightening out difficulties. Each bird seen in the field is exhibited before the class and comments made upon it. A part of the work of this term is recitation upon each of the species seen at any time during the term. This serves to bring to a focus one's mental picture of the species.

During favorable weather the field work is distributed over two mornings and two afternoons, and either a whole day excursion to some especially favored spot or a third afternoon. Four such all-day excursions are arranged during the term. The morning work occupies the two hours between 4:30 and 6:30 A. M., the afternoon work from 2:30 to 7:30 P. M. The four morning hours count for larger results numerically than the fifteen afternoon hours, but the contrast afforded is useful. The all-day excursions give the needed contrasts of the different hours of the whole day, while furnishing the means of comparing the fauna of fields and roadsides with woods and thickets. Streams, ponds and Lake Erie are visited, where many water frequenting species are seen.

At the last exercise of the class each student submits the results of the term's work in a paper, which gives the local geographical distribution of each species seen, representations or descriptions of the manner of flight, the food, the song, habits as far as noticed, and nests and eggs of such species as have been found nesting. All this is taken from the note-book, of course.

The total number of species seen by the class during this term's work exceeds 90. Of these fully 70 will be seen satisfactorily, giving opportunity for study. Individual field work will swell the list of species well seen just in the proportion that the field work is done with keen interest and discrimination. There is no better illustration than this term's work of what can be accomplished even in the heated term of summer. He who pursues the study of the birds at this time will be sure to meet with many pleasant surprises.

Every-Day Study of Birds for Busy People, Including a Method of Recording Observations

BY W. H. C. PYNCHON

Instructor in Natural History, Trinity College

OW often you hear somebody say, "I would like very much to know something about birds, but I don't have time to make a study of them." It is to these would-be ornithologists that this little paper of suggestion is addressed by one who, during a great part of the year, has very little time to spare, but who, nevertheless, has made the acquaintance of a good many of our feathered friends.

I live in the city of Hartford, Conn., and my home is about a mile from Trinity College, where I have charge of the work in Natural History. Of course I have the summer vacation and a good many hours during the term which I can devote to the study of birds, but it is not of these times that I wish to speak, but of my busy days. I generally walk between my house and the college, through a part of the year at least. My way lies through old Zion Hill Cemetery, and if I choose to allow a few minutes more time, I can go through one or two new parks which are in almost my direct route. The college itself stands on a trap ridge, with open fields on three sides, those to the west being largely meadowland. As a result of all this, I am able to see a good many birds as I go back and forth and to acquire a bowing acquaintance with many of them at a very small outlay of time.

All winter long I hear the call of the Crows across the lowlands. All winter long Chickadees and occasional Kinglets spend their sunny days along the southern edge of the old cemetery. In early and late winter the Juncos flit from bush to bush, and after heavy snows the Meadowlarks come in, seeking food. To the high firs of the cemetery come the first Crow Blackbirds, and, a little later, the meadows west of the college are ringing with the notes of the Song Sparrow. So the birds come, one after another, to this single mile within the city limits till all the summer visitors are here. Slowly they leave in the autumn, till Zion Hill is again surrendered to the Crow, the Nuthatch, the Chickadee and the Downy Woodpecker.

When I first kept a daily record of the birds, I began it with the determination to spend upon it no time that belonged to my work — simply to make it an incidental in my every-day occupa-

tions, and though at times I have wavered in this path of virtue, still I have held to it for a great portion of the time in a fairly laudable manner. At first I kept the record in a laborious way of my own devising, but after sundry experiments I have reduced the method to a fairly practical basis. The method is an extension of that which Mr. Chapman gives in his 'Handbook of Birds,' and I take the liberty of giving it in full, in the hope that it may be of service to some one.

For the purpose I get a blank book of the kind usually sold under the name of 'Record,' with pages *ruled* and numbered; each page measuring about 8 x 10 inches. Page No. 1 I reserve for an index of abbreviations. Pages 2 and 3, which face each other, I rule off in the following manner: If the book is for the present year, I put at the top of page 2, "January, 1900." I then divide all of page No. 2, and the left hand half of page No. 3, into sixteen equal vertical columns, one for each of the first sixteen days of January. The right hand half of page No. 3 I leave for notes. Then I divide each of the sixteen columns by a fine line down the center. Next I hinge to the left-hand edge of page No. 2, a 'folder' of heavy paper about three inches wide and as long as the page. This can be folded into the book when not in use.

Now as to the method of use. Suppose that on the first day of January I saw no birds of any kind. I simply leave the first column of page No. 2, labeled at its top "Monday, 1st," blank. On Tuesday on my way to the college I saw a Downy Woodpecker in Zion Hill Cemetery, I heard several Crows in the distance, and I saw five or six Juncos on the college grounds. I open out the folder attached to page No. 2, and write on it, opposite the first ruled line of the page, the name "Downy Woodpecker." Now I follow the line across till I come to the vertical column headed "Tuesday, 2nd." In the left-hand portion I write "1" to indicate the number of Woodpeckers seen, and in the right-hand portion I write "Z.H.," to indicate that it was seen on Zion Hill. Then on the folder, opposite the second horizontal line, I write "Crow," and in the corresponding left-hand portion of the column for Tuesday, 2nd, I enter "h. sev.," to indicate that I simply *heard* several, and I do not, of course, enter any special locality. In the same manner I enter next "Junco," "5–6," "C.G." (College Grounds).

Of course, in sixteen days, pages 2 and 3 are used up, so I simply rule off pages 4 and 5 in the same manner into sixteen columns, which will of course accommodate the remaining days of January, with one column to spare. In the same way I lay out pages 6 and 7, and 8 and 9, for February. Inasmuch as the hori-

zontal lines start always at the same distance from the top of the page, the name "Downy Woodpecker" will always correspond with the first line, "Crow" with the second line, and so on, throughout the twelve months. As I add more varieties to the list, the folder, of course, becomes filled down to the bottom. I leave, however, a space of one and one-half inches, as I want to make a weather record at the foot of the column for each day. When this folder is thus filled, I leave a sufficient number of pages to go with it, then insert a second folder, and continue the list as before. My list of last year ran out to the fourth folder.

The weather and the temperature are important factors to be reckoned with in bird observations. I think that the record at the bottom of the daily column can be most profitably kept by some system of symbols, of which a proper index should be written on the first page. For instance, I use Arabic numerals to indicate the weather, as — 1. fair; 2. overcast; 3. cloudy; 4. light rain, etc., and Roman numerals to indicate the force of the wind, as — I. none; II. light; III. strong, etc. For instance, take this record — "H'f'd. 1–3 III. N. 28°–30°." This means that the record was made at Hartford, that the day was fair, later becoming cloudy, that there was a strong wind from the north, and that the lowest temperature was 28°, and the highest 30° above zero.

DIAGRAM OF TOP AND BOTTOM OF SPECIMEN PAGE

(*Folder*) (*Page*)

	2. JANUARY, 1900							
	MONDAY 1		TUESDAY 2		WEDNESDAY 3		THURSDAY 4	
1. Downy Woodpecker.			1	Z.H.				
2. Crow.			h.sev.		3	Z.H		
3. Junco.			5–6	C.G.				
	H'f'd. 3–1		H'f'd. 1		H'f'd. 1		H'f'd. 3	
	III. N.W		II. S.E.		II. S.W.		II. S	
	40°–0°		–6°–19°		25°–31°		40°–43°	

(Three)

I rule my pages once a month, and, that once done, it rarely takes more than five minutes to make out the record of each day. It is easy to remember the new birds to be added to the list, while

a swift perusal of the names already entered will call to mind the old friends that have been met. The result is a complete permanent record for the year. The blank portion (right-hand half) of each right-hand page is reserved for explanatory notes concerning any of the entries made.

It is often desirable to set down the markings of a strange bird while you are in the field, in order that you may look up the name in the key on your return home. There are various blanks published for this purpose, but I know of none simpler than the one gotten out by one of my students, of which I append a diagram:

FIELD DESCRIPTION. NO.....

A. C. HALL, WEST HARTFORD, CONN.

Comparative size, Chippy, Song Sparrow, Bluebird, Robin, Crow, or larger

Probable family.....
Bill.....
Forehead.....
Crown.....Center stripe.....
Back.....
Rump.....
Wing.....Barred.....Coverts.....
Tail.....Barred.....Outer feather.....
Eye.....Line over.....Under.....
Line through.....Auriculars.....
Throat.....
Breast.....
Sides.....
Belly.....
Under tail-coverts.....
Flight.....
Notes.....
Date.....Locality.....
Name.....

I have gone into a rather elaborate explanation of this method in order that I may make myself fully understood. I am afraid that by so doing I have made the matter seem too difficult. My intention has been to show how easy it is to keep a list of the birds of every day, and I therefore have given a diagram of a part of a page from my note-book for January. It takes but a few minutes in a day, and what are the results? At the end of the year you have an acquaintance with several score of birds and their notes; you have a record of when they appeared, when they were most numerous and when they were last seen. A small letter "s" inserted in each entry will show when they were in song. You have incidentally a record of your whereabouts every day in the year, separate bird-records for special localities, and a complete weather-record. And when, with the returning spring, old friends come back again, it is pleasant to know where and when you first saw them in previous years.

For Young Observers

February Birds

BY MORGAN ST. JOHN (aged 12)

Grammar School, Ithaca, N. Y.

ON the morning of February 19 we went on a walk in search of birds and nests. On our way to the swamp we saw, on one short block, sixteen Orioles' nests. These nests are always hung on drooping branches. They look like little bags on the branches of elm trees. The Orioles weave their nests. Some of them are made from milkweed bark, or of moss, grass, or even of silk and thread.

We also saw a great many Robins' nests, which are carelessly built of mud and grass. The grass is on the outside, the lining is of mud.

Mistress Robin is certainly a sloven housekeeper, and the cup-like nests are lodged in the forks of trees in such a way that a heavy shower or wind brings many of them to the ground.

Crows' nests are built usually in evergreens. We saw them in swamp maples. One of these was about thirty-five feet from the ground. It was made of sticks and twigs, thrown loosely together and lined with cedar bark.

The ground was covered with snow, and we saw in all directions tracks of some bird with three toes in front and one long toe behind. We found that these tracks were made by the Partridge, or Ruffed Grouse. These tracks are remarkably curious, because they are wider than the birds' feet. I found it was because in the winter time little stiff bristles grow around each toe and make little "snow-shoes." With these winter shoes on the bird does not sink in the snow. These snowshoes begin to grow in the autumn and are gone by April.

We did not see the Partridge, but we saw dead logs where he had been to pick off the bark to find the bugs and worms. Another interesting track is made by the Partridge. When the bird runs he takes long steps and drags his hind toe. This makes a mark which gives you an idea his toe is longer than his tracks.

We saw a Downy Woodpecker. This one was a female. She was about the size of an English Sparrow. She is like the male bird, except she has no red patch on the back of her neck. This

bird lit on a dead stump, thrust in her bill and pulled out a worm an inch long. She flew off with it to another stump and twisted her head around until she swallowed it.

The Woodpecker's nest may be in a low tree or in a high one, and it is lined with grass and feathers. The male is black above, striped with white. The tail is wedge-shaped and is used to stick in the limbs when resting or eating. There is a black stripe on his head, white over and under his eyes, while there is a red patch on the back of his neck.

A week later, on February 25, we went on another walk in search of birds. This time we climbed upon a hillside. In a short time we counted seventeen or eighteen Robins' nests, and better than all, we saw our first Robin. He had probably been in that locality all winter. He looked as if he had not had much to eat. He ran along the ground, stopping now and then to try to pick up a worm or bug. He seemed to enjoy his breakfast.

We were glad to spy the Junco or Snowbird. He is slate-colored, with gray breast. When he flies you see that the outer tail-feathers are white, and the under ones are blue or dark slate-colored. A friend of mine saw a large flock of Juncos a few days ago,

We had the good luck to see a Chickadee. The Chickadee is a small bird. It has no crest. In color it is gray or brownish. There are patches of black on it. In fact, the throat, chin and head are black, with streaks of white on head, breast, wing and tail. The white is not clear, but dirty looking. Our Chickadee stuck his head in a knothole in a telephone pole.

There were two Song Sparrows to greet us. They sang very sweetly, raising their heads when they sang. They have brown heads, and there are brown stripes on the throat. Their back is brownish gray. The breast is gray, shading to white. There are brown or black spots on the breast and wings. One of the Sparrows was in some brush, or growth of small trees. They are dear little birds, and we like to see and hear them.

We saw a Black-billed Cuckoo's nest, made flat, out of straw. There was no mud nor hair in it.

We saw several Vireo's nests, which are round like a little pot, in the forks of trees.

Last of all, in a large field we saw a Horned Lark. Its note sounds like two or three shrill notes, and then like a water whistle. This Lark is larger than the Sparrow, and is a brownish gray color. It has two little horns on its head.

We did not find the Hairy Woodpecker, but he is about.

What a pleasure it was to see these birds and their nests!

Notes from Field and Study

The Season's Flight of Crossbills

During the past season both Red and White-winged Crossbills have appeared in exceptionally large numbers and have extended their wanderings further south than usual.

Mr. William Brewster writes that the White-winged Crossbills first arrived at Concord, Mass., on November 6, where they were abundant until the 23d, when he moved to Cambridge. At or near the latter place small flocks were seen at intervals during most of December, but they became less frequent during the latter half of the month. Of the Red Crossbills he states that fifteen were seen at Cambridge on November 20, and very few were reported from there after November 15.

From Saybrook, Conn., Judge J. N. Clark writes that the first White-winged Crossbills were noted on November 6, when a flock of six was seen, and that from the 16th—he was in attendance at the A. O. U. during the interim—until after the first week in December they were observed in greater or less numbers, twenty-five in one flock being counted on November 22. About December 1 a flock of about fifty Crossbills, composed of both species, in nearly equal numbers, was seen, and from that date until December 23, when the flight seemed to be about over, several flocks of Red Crossbills, with occasionally a few White-wings, were observed.

At Fairfield, Conn., Mrs. Wright states that Red Crossbills began to appear the first week in October, and on November 5 they were joined by two of the White-winged species. The numbers increased throughout the month, and on December 25, in returning after a three weeks' absence, thirty-eight Crossbills were counted in one flock, feeding on spruce cones that the red squirrels had thrown to the ground. The majority were either young or females, but among them were six adult male Red Crossbills and five adult White-winged Crossbills.

I have received no reports of the White-winged Crossbill from further south, but the Red Crossbill continued its migration in large numbers at least as far as the vicinity of Washington. Small flocks were

RED CROSSBILL
Photographed from life by J. D. Figgins, Falls Church, Va.

observed at Englewood, N. J., where they rarely occur, in November and December; and as I write (January 8) about thirty birds are actively feeding among the cones of a Norway spruce in view of my study window. Mr. J. D. Figgins tells me that he first observed them at Falls Church, Va., on December 1, where they were abundant until his departure from the locality on the 14th, and Dr. Fisher writes that Mr. James H. Gaut, of the Biological Survey, saw several hundred Crossbills in Virginia, a few miles from Washington, in December.

During the last great southward flight of Red Crossbills, in the winter of 1888–89, I observed a flock of about fifty birds at Aiken, S. C., but thus far this season they have not been reported to me from south of Washington. Mr. H. H. Brimley writes from Raleigh, N. C., that none have been observed there; and Prof. T. G. Pearson,

of Guilford College, N. C., makes the same statement.—Frank M. Chapman, *Englewood, N. J.*

Blue-Winged Warbler in Southern New York in January

On January 6, 1900, a specimen of the Blue-winged Warbler (*Helminthophila pinus*) was found dead on the borders of the Bronx river, in the hemlock grove in Bronx Park, and was picked up by me from a bed of mosses, where it lay with its beak open, frozen stiff.

My determination of the species has been verified by Mr. E. P. Bicknell and Mr. R. S. Williams, and the latter, who skinned the specimen, noted that the gizzard and crop were entirely empty and the skeleton uninjured, so that the bird evidently starved to death.—Elizabeth G. Britton, *New York City.*

[The specimen above recorded has been presented by Mrs. Britton to the American Museum of Natural History. It is apparently a female and its plumage is in fresh and unworn condition. On inquiry, Mr. Williams states that the bird had doubtless died but a short time before it was found, the eye-balls still being firm and unsunken. The Blue-winged Warbler is not only one of the first of our summer residents to leave, it being rarely observed after September 5, but it winters south of the United States, and its occurrence here at this season is therefore especially remarkable. The fact that the bird had survived several severe frosts—on one occasion the mercury registering 8° — is also of interest. Probably the well known habit of the species of searching for food in bunches of dead leaves and similar situations had enabled it to live where a fly-catching Warbler would long before have died.—F. M. C.]

A Philanthropic Sparrow

The only kindly act I ever saw performed by an English Sparrow was done last year in a Vermont town at a time when tent-caterpillars were particularly abundant. A Chipping Sparrow brought off her brood and was busily trying to teach them to pick up food for themselves, but one could not, or would not, try. He fluttered up to an English Sparrow, which was picking up seeds, chirped, opened his mouth, and begged for food in an unmistakable manner. The English Sparrow, a fine cock, picked up a tent-caterpillar—a kind which he never ate himself—and thrust it into the Chippy's open beak, then flew away as if he feared that he might be asked to take it out again!—Caroline G. Soule, *Brookline, Mass.*

Hawk and Robin

An interesting incident, illustrating the great force with which birds fly, came under my notice some time since. I was at my window, when suddenly the glass flew into a hundred pieces, and I saw a bird fluttering on the floor. On examination it proved to be a Sharp-shinned Hawk, in fine condition and plumage, but its disastrous passage through the window had injured one wing severely.

In searching for the cause of its actions, we found on the ground, under the window, a large male Robin, dead, but without a mark on him to show what caused his death.

Did he die from fright, or could the Hawk have struck him with force enough to kill him without having external injury? Did the pursuer go with so much more force than the pursued, as to go through the window, while the other dropped dead from the force of the blow?—Emilia C. Anthony, *Gouverneur, N. Y.*

The Notes of the Crow

In all the bird books I have read, I have not found any mention of the American Crow using a call-note other than *caw* and its variations. I have now and then heard them say, *krruck—krruck—krruck*, or *caw—caw—caw—krruck—krruck*, and the like.—Charles H. Rogers, *Philadelphia, Pa.*

[Our correspondent perhaps refers to notes uttered by Crows when attacking a Hawk or Owl, or possibly to the *car-r-r-r-uck, oo-oo-oo-oo-oo, oh*, which is commonly heard in the spring when the birds are mating. In either event, we are not a little surprised to find, as Mr. Rogers says, that the ornithological biographies credit the Crow with only the *caw* call.—Ed.]

A Pair of Canadian Climbers

How easy it is to go into the woods almost any day and bring back dozens of mental pictures of birds; but lucky is the week and fortunate the fifth of a second in which we secure a really good photograph of a wild bird.

How many scores of Brown Creepers have zigzagged up tree-trunks, and flown down to the bases of others, just too far away! But in late September, 1899, deep in the woods of Digby county, Nova Scotia, a Creeper, well meriting his specific name, *familiaris*, found a tidbit in a crevice of bark, not three feet from me, and tarried long enough for a quick focus and successful exposure. Although a fairly sharp picture was secured, the difficulty of clearly distinguishing the bird within a space of a few square inches admirably illustrates the harmony in pattern of coloration which exists between it and the bark on which it is resting. Two days later, I watched for some time tiny moving specks on my ground glass—reflections of a flock of Pine Grosbeaks, uttering their exaggerated, Goldfinch-like notes in the spruce above me. They showed no signs of descending, and I was about to abandon the attempt to photograph them, when a Red-breasted Nuthatch peered around the corner of a stub in front of me. The second photograph shows him as I saw him. He stayed but a moment, but that short space of time was fatal to any objections he might have had to publicity.—By C. William Beebe, *Assistant Curator of Birds, New York Zoölogical Society.*

BROWN CREEPER
Photographed from nature by C. William Beebe

RED-BREASTED NUTHATCH
Photographed from nature by C. William Beebe

Increased Interest in Bird Photography

At the 1889 meeting of the American Ornithologists' Union a committee was appointed to solicit the loan of lantern slides showing wild birds, their nests and eggs, to be exhibited at the next Congress of the Union, when about two dozen slides were shown.

At the meeting of the A. O. U., held in Philadelphia in November last, although no effort had been made to secure papers illustrated by slides, between two and three hundred were exhibited, and many others were not shown for lack of time.

Book News and Reviews

Results of a Biological Survey of Mount Shasta, California. By C. Hart Merriam, North American Fauna, No. 16, Washington, Government Printing Office, 1899. 8vo, pages 179; pll. v; text figures, 46.

Dr. Merriam remarks in his introduction: "All high mountains, particularly those that stand alone, are likely to throw light on the problems of geographic distribution, and are worthy of careful study. Shasta, not only because of its great attitude, but even more because of its intermediate position between the Sierra and the Cascades, promised an instruction lesson, and was therefore chosen as a base station for part of the field work of 1899."

Lack of space prohibits a detailed review of this volume, whose contents is indicated by the following section headings: 'General Features,' 'Forests of Shasta,' 'Forest Fires,' 'Slope Exposure,' Life Zones of Shasta,' 'The Boreal Fauna and Flora of Shasta contrasted with Corresponding Faunas and Floras of the Sierra and Cascades,' 'Efficiency of Klamath Gap as a barrier to Boreal species compared with that of Pitt River and Feather River Gaps Collectively,' 'Sources of the Boreal Faunas of Shasta and of the Sierra and the Cascades,' 'Mammals of Shasta, 'Birds of Shasta and Vicinity' (pages 109–134),' 'Notes on the distribution of Shasta Plants.'

The work is an admirable exposition of its author's thorough methods of research, and exhibits his breadth of view in considering the influences which govern the distribution of life.—F. M. C.

Our Native Birds: How to Protect and Attract Them to Our Homes. By D. Lange. New York: The Macmillan Company, 1899. 12mo, pages ix+162, 10 ills. in text. Price, $1.

Here is a book which should be in the hands of every one interested in bird-protection. The author is not only fully abreast, but perhaps a trifle ahead of the times. As instructor in Nature Study in the public schools of St. Paul, Minnesota, he has learned to appreciate the educational value of bird-study and to develop methods of teaching which here are c early set forth. As a resident in the country, he has observed the evils of bird-destruction, and has devised means of making our lawns and gardens more habitable for birds by providing them with feeding, bathing and drinking places and nesting-sites, and by destroying their enemies.

The author is not a theorist, but is definite and practical, and the reader desirous of attracting birds about his home will find here exactly the needed instructions, with well selected references to the literature of ornithology and horticulture.

The book is a unique and valuable contribution to the subjects of bird-study and bird-protection, and we wish for it the widest possible circulation.—F. M. C.

Bird-Notes Afield, a Series of Essays on the Birds of California. By Charles A. Keeler. D. P. Elder and Morgan Shepard, San Francisco, 1899. 12mo, pp. vii+353.

Bird-students in California are to be congratulated on the appearance of this volume, which fills the long felt want of a popular handbook of the birds of the state. Mr. Keeler's technical knowledge of ornithology, his sympathy with birds in nature, and his gift of description have especially fitted him to produce a successful book of this kind, and an examination of its pages shows that he has done justice to his powers.

The first 233 pages are devoted to sketches of birds in their haunts, under such titles as, 'A Trip to the Farallones,' 'A Glimpse of the Birds of Berke-

ley,' 'In a Mission Patio,' etc., while an appendix of 117 pages contains 'A Descriptive List of California Land Birds, with Key.'—F. M. C

THE AVIFAUNA OF THE PRIBILOF ISLANDS. By WILLIAM PALMER. Extracted from 'The Fur Seals and Fur Seal Islands of the North Pacific Ocean,' Part iii, pp. 355–431. Pls. 2, Washington, Government Printing Office, 1899.

This is essentially a complete monograph of the avifauna of the Pribilof Islands, with a description of the topography of the Islands, an account of their ornithological history, studies of the geographical distribution and migration of their birds, and detailed treatment of the sixty-nine species which have been recorded from the group.

Mr. Palmer is a careful, patient observer and thoughtful student; while we may not always agree with his theories we are grateful for the facts which make this paper an exceedingly important contribution to the literature of ornithology. —F. M. C.

Book News

ONE of the most interesting features of the last congress of the American Ornithologists' Union was the presentation of a number of letters from Audubon to Baird, which were read by Mr. Witmer Stone, through the courtesy of Miss Lucy H. Baird.

They were written in 1842 or 1843, when Audubon, then some sixty years of age, was preparing for his trip to the upper Missouri to gather materials for his work on North American quadrupeds, and they exhibit in the most pleasing manner, not only their writer's enthusiasm for the task in which he was then engaged, but also his affectionate regard for Professor Baird, who, at the time was a young man of twenty, on the threshhold of his career. It is to be hoped that these letters will be published.

THE New York Zoölogical Park has issued an excellent guide to its collection by Mr. W. T. Hornaday, director of the park. It is beautifully illustrated and attractively printed, and, aside from its value as a guide, has permanent worth as a text-book of the mammals, birds and reptiles of which it treats. We note with regret the erroneous statement, on page 44, that Brown Pelicans' feathers are not used by milliners.

THE interesting and well edited 'Bulletin of the Cooper Ornithological Club of California' begins its second volume under the title of 'The Condor.'

SOME time since one of our leading monthlies published a drawing of the Murre rookery of the Farallone Islands from a photograph by Mr. C. Barlow, the well known California ornithologist. As very often happens in bird-photography, the birds had left the foreground of the picture, and to remedy this defect the artist has introduced birds in his drawing which were not in the photograph.

While the result may be considered an artistic success, we fear it will not be endorsed by ornithologists, the added birds not being Murres, but King Penguins, a *flightless* species which does not occur within several thousand miles of the Farallones!

THE Jacksonville 'Times-Union,' learning from a notice published in December BIRD-LORE that a party of hunters was bound for Florida 'to shoot all kinds of water birds,' vigorously comments on their coming, under the caption, "Jail the Filibusters," as follows: "We invite all correspondents of this paper to keep a careful watch for such filibusters and all their kind. Moreover, we insist that the intention itself is actionable; in case no capture is made in this state, information is here furnished from reliable sources warranting the Attorney-General in proceeding against these parties within their places of hiding or business and bringing them before the Federal Courts. . . . . Such wholesale massacre has become serious to the farmers of the state, as well as to those who take a less materialistic interest in the victims. The Governor has issued his instructions, and there can be no doubt as to the temper which animates his language."

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Edited by FRANK M. CHAPMAN

Published by THE MACMILLAN COMPANY

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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand.

BIRD-LORE begins its second year under circumstances which encourage the belief that already it is in a fair way to accomplish the purposes for which it was established. These, it may be remembered, were stated in our first issue to be a desire to aid students of birds in nature and to promote the cause of the Audubon Societies.

As far as our relations with bird-students are concerned, we desire here to express our appreciation of the large number of letters we have received from subscribers who have been kind enough to say that BIRD-LORE has been of assistance to them. Their warmly spoken thanks are very grateful to us, and one letter, like the following, goes far toward recompensing us for any labor expended in their behalf. The writer says: "I wish to take this opportunity of expressing my appreciation of BIRD-LORE and of saying that it has with me accomplished the purpose for which you say it is published — namely, the development of an active interest in birds. I am a novice in ornithology, but BIRD-LORE has helped to make the woods and fields mean far more to me than they ever did before, by disclosing a side of nature to which I now see I was, until recently, practically blind; and I think that my experiences must be but an example of the experience of many of your other readers, who, like myself, are business men, and so have comparatively little time to study nature."

From the Audubon Societies we have received very welcome assurances that BIRD-LORE is filling a 'long felt want,' and, in this connection, we may be permitted to quote from the report for 1899 of Mr. Witmer Stone, chairman of the American Ornithologists' Union Committee on Bird-Protection. In his report for 1898, Mr. Stone had remarked upon the necessity of an official organ for the Audubon Societies; he now says that the idea of such a magazine has been realized by the appearance of 'BIRD-LORE,' "which has fully justified the highest expectations of its advocates. The Audubon Society department, under the direction of Mrs. Mabel Osgood Wright, serves to unite these organizations and forms, as it were, a central bureau of information upon this line of work." — Auk, Jan. 1900, p. 52.

The press throughout the country, has greeted 'BIRD-LORE' most cordially, and from numerous notices we select the following from the Philadelphia 'North American:' "BIRD-LORE completes its first year with the current December number, in many ways the best so far issued, which is saying a good deal. The editor and publishers of this more than attractive, beautifully illustrated magazine deserve the utmost encouragement, for not only is it full of interest for bird-lovers and students of field ornithology, but it is active in a work —that of protecting our birds—which is far more important, economically as well as æsthetically, than most can imagine. For these reasons, we heartily commend BIRD-LORE as the best popular magazine on birds."

This reception of BIRD-LORE is far more gratifying than mere pecuniary success could be and is a potent spur to our desire to make each issue better than the last.

In the earlier numbers of the present volume, which appear at a time of the year when bird-studies form a part of

the nature-study courses in our schools, special attention will be paid to the pedagogics of ornithology, while the later numbers will be more largely devoted to the recountal of experiences afield.

Senator Hoar has again introduced into the United States Senate a bill designed to control the traffic in feathers for millinery purposes. It differs from the bill introduced by him last year only in excepting from its provisions birds which are used for food.

'The Millinery Trade Review,' in commenting on this bill, says: "The task of crushing such a measure will be made more difficult than at the last session, but crushed it must be, and every man or woman connected with the millinery trade must lend his or her aid in connection with that of the Millinery Merchants' Protective Association, whether capital is invested in the business or one is a wage-earner. His or her living in the seasons to come depends upon the rise or fall of this most iniquitous and childish measure."

It is this final statement on which the specious pleas of the milliners are usualy based, whereas, as a matter of fact, no one thing would more greatly benefit the milliners' trade, as a whole, than the total abolition of feathers—many of which are worn exactly as taken from the bird—and their consequent replacement by various artificial ornaments, the manufacture of which would give employment to a much larger number of persons than are at present engaged in the millinery trade.

In 'Harpers' Bazaar' for November 18, 1899, there appeared an editorial paragraph to the effect that as Herons are no longer killed for their plumes, which are now gathered from the ground and plucked from captive birds there was no longer any reason why these feathers should not be worn by the most humane-minded woman.

Inquiry developed the fact that this paragraph was written by Mrs. Isabel Strong and was based on information furnished her by Mrs. Robert Louis Stevenson, who in turn had received it from a missionary to India.

Requests for a correction of this erroneous and misleading article resulted in an admission from the editor of the magazine in question that "unquestionably . . . a comparatively small proportion of those egrets used are found upon the ground." Nevertheless, he has made no further reference in his pages to Mrs. Strong's paragraph, which led the reader to believe that *all* the plumes used were either picked up from the ground or plucked from birds captive in so-called 'Egret farms.' Concerning these 'farms' the editor of the 'Bazaar' is silent, and in every case where investigation has been possible the 'farm' has proved to be a myth. One was described in great detail by a newspaper correspondent, who made the mistake of locating it in Yuma, Arizona, the home of Mr. Herbert Brown, a well-known ornithologist and member of Bird-Lore's Advisory Council. Inquiry of Mr. Brown develops the amusing fact that the 'farm' consists of one little white Egret kept as a pet at the Southern Pacific Hotel.

Admitting the possibility of picking plumes from the ground, it is absurd to suppose that the plume hunters would adopt this method to the exclusion of shooting, when one well-directed shot would yield more and better plumes than they might find in a week's search.

Assemblyman Hallock has introduced a bird-protection bill in the New York legislature, which differs from the existing law in making the possesion of a bird's plumage as actionable an offense as possession of the bird itself. Under the present law it has been found impossible to convict millinery taxidermists having in stock the freshly made skins of native birds, but the amendment proposed, by making the old law active, will permit of the conviction of these, the worst offenders against it. We, therefore, urge our readers to use all possible influence in securing the passage of Mr. Hallock's bill.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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Wanted—The Truth

During the past year there has been a distinct general advance in the bird-protective movement which would be very encouraging to us if it had not been marred by a most unaccountable and unexpected epidemic of the bird-and-feather-wearing habit.

A year ago we felt that this habit of wearing prohibited feathers was waning, that we were perhaps harping too persistently on one string, and that some of our protection orators would better turn their attention to the marauding Italian, the small boy, and others; in short, improve the law and leave the lady alone for a time, to readjust her conscience and headgear according to the bright light the Audubon Societies had shed upon the faults of the last-named article.

A wide-spread interest in birds and the pros and cons of protection ensued. Many women who had really worn egrets and other prohibited feathers, through lack of knowledge, abandoned them, and even those who did not choose to be considerate could no longer plead ignorance as an excuse.

The effects of the crusade against the killing of song birds could be plainly seen even amid the feather-heaped windows of the past six months. In early autumn, however, Terns, Gulls, whole or in part, Grebes made into bandeaux, crowns or brim facings, as well as made trimmings of portions of other birds, were startlingly conspicuous. These feathers, however, were easily recognized, and therefore avoidable. But, alas, a new pitfall ensnared the same "moderates" that went astray on the quill question, and that pitfall was and is the so-called "made trimmings."

There has been some newspaper agitation upon this subject, but rather wide of the mark and not expressed in a way to win credence. All statements concerning the statistics for and against feather-wear-

ing and bird-destruction should bear the signature of some one whose word is that of authority. There is too much random pen work. The recent interest in bird-protection in all branches has led the various journals of the country, with a well intentioned interest in current events, to publish an unusual amount of natural history items, either collected at random by the office shears or contributed by the many ornithological Munchausens with all the plausible volubility of little knowledge.

The mis-statements so published, for which no one seems to be exactly responsible, give the lie to many carefully stated truths that the protectionists wish most to inculcate. These errors, also, being more in accord with the ideas of feather-headed ladies, are eagerly received, and even after they have been corrected as far as possible, still continue their influence.

It is on this point that a new impulse can be given the work of the Audubon Societies. Newspaper publicity of the right sort is what the cause most needs, as the newspaper is the only literature that reaches the greater part of the community with any sort of directness. Do what we will, our appeals and leaflets reach but comparatively few.

Let each Audubon Society organize a special press committee composed of two persons, one with a bent for reading, the other to be one who mingles much in society, observing what the local vagaries of headgear may be. Let the reader go once a week to a public library and look over the papers, with a view of keeping in touch with all that is said in regard to feathers, and let the social member keep note of the forbidden or questionable feathers that appear on bonnets, so that necessary local warnings may be given. By this means flagrant mis-statements can be *locally* corrected, making the work doubly sure, and valuable statistics as to local feather-wearing can be published from time to time.

Of course great care must be taken in the choosing of these committees. The members must be well informed as well as zealous, for in all reform movements, especially those where sense and sentiment are interwoven, there is but a step from the sublime to the very, very ridiculous. If every Society will form such a press committee, able to do conservative and reliable work in its own state, a committee upon which editors can rely, knowing that it has behind it the authority and advice of BIRD-LORE'S Advisory Council, the first step will be taken toward the desired Federation of Audubon Societies, with an annual convention where members may meet face to face and feel the fellowship that comes from the spoken word.

M. O. W.

An Appeal to Bird-Lovers.

[The following appeal for the Gulls and Terns has been issued by the American Ornithologists' Union. Copies of it may be obtained, without charge, by addressing Mr. Abbott H. Thayer, Scarboro, N. Y.—ED.]

Fashion has again attacked the Gulls and Terns, and the feather dealers state that the demand for the skins of these birds far exceeds the supply.

The last moment for saving the surviving Terns has come, and the American Ornithologists' Union therefore appeals to every bird-lover for money, to be used in hiring wardens to protect the birds while nesting. Contributions should be sent to Mr. William Dutcher, treasurer of the Union, at 525 Manhattan avenue, New York city, who will furnish all desired information.

ABBOTT H. THAYER.

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Pres. Mass. Audubon Society.

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Chairman A. O. U. Com. on Bird Protection

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WILLIAM DUTCHER,
Treasurer A. O. U.

Where the Grebe Skins Come From.

By VERNON BAILEY, Biological Survey, Department of Agriculture.

In a Washington street car the other day I counted thirteen Grebe skins on women's hats, and I am sure Washington women are no more partial to these ornaments than the women of other cities across the whole breadth of the continent, The beautiful, silvery skins with rich brown borders are becoming so fashionable and being worn by so many thousand women, that the question arises, Where do they come from ?

Last summer my work took me among the Grebe hunters of the lake region of eastern California and Oregon. In this half desert region of scattered stock ranches, where great, shallow, alkaline lakes with wide borders of tules fill the bottoms of the valleys and the country seems fitted especially to be a home for wild things, vast numbers of Grebes have for centuries built their nests and raised their young. Their only enemies were the mink, otter and other wild foes that experience had taught them to cope with. Even the Indians left them unmolested, preferring Ducks and their eggs as food, so the Grebes were secure in their homes until fashion claimed them.

Over most of the country the Grebes are known only as migrants, when they are so wary and so expert in diving that they are well prepared to take care of themselves. But on the breeding grounds all is different. As I waded among the tules in the shallow margins of Tule lake, California, last summer, the Grebes followed close after me or, diving, came up again only a few feet away, cackling and scolding, as they tried to drive or coax me away from their island nests, which were floating among the tules, boldly offering their lives for the safety of their homes. Often as I stopped to examine the hastily covered eggs in the damp cup of the floating nest, the old birds would rise noiselessly from beneath the water by the side of the nest and sit motionlesss on the surface, watching me with their bright red eyes full of anxiety. Or, as I surprised a brood of little black, downy chicks among the tules one of the parent birds would swim fearlessly up to me to attract my attention, while the other hurried the chicks out of sight into the tules or swam rapidly, with them clinging to her feathers, out into deep water. The three species of Grebes breeding here, the Western, the Eared, and the Dabchick, though belonging to different genera, are similar in habits. They are miniature Loons, graceful, soft-tinted, silvery breasted water sylphs, fitted only for inhabiting the water or the air. Harmless, beautiful, defenceless, they fill the place among birds which the fur seals do among mammals, and their doom seems as sure and as sad.

While among the nests watching the brave, beautiful little people building and guarding their homes and caring for their young, I could hear the guns of the skin hunters along the shore of the lake all day, and I was told that from early spring till the lakes freeze in fall the destruction goes on, though most successfully during the breeding season. The birds are shot, the skins of the breasts are stripped off, dried flat and packed in gunny sacks. They bring the hunters 20 cents each, and I was told that several thousand were shipped from Klamath Falls every week through the summer, and that the hunters often make twenty or thirty dollars a day.

Shall we appeal to these rough, untaught men to desist—to give up the rich harvest they are reaping ? It would be as useless as to appeal to the unthinking women who decorate themselves with the innocent breasts. The state laws do not protect these birds, because they are not considered game. A few years more and there will be no need of protecting them ; they will be where the Egrets, the Pigeons and the Buffalo are—in our memories.

Photographed from life

WILD GEESE

Illustrating 'A New Camera for Bird Photographers'

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. II APRIL, 1900 No. 2

A New Camera for Bird Photographers

BY JOHN ROWLEY

Chief Taxidermist of the American Museum of Natural History

EELING keenly in my work the need of a camera which would enable me to make studies of birds and animals, I have for several years been experimenting with devices which would be more suitable for my purposes than any of the ordinary tripod or snap-shot cameras of the trade.

In 1895 I ordered from Messrs. Scovill & Adams a 5x7 'double decker,' built after plans of my own. This camera had twin lenses, one above the other and both of the same focal length. The upper lens threw the image upon the mirror, whence it was reflected to a horizontal ground glass protected by a hood and situated upon the top of the box; and the other lens communicated directly with the plate below, upon which the exposure was to be made.

This camera worked very well, but was entirely too bulky, and its large size led me to thinking of means by which one lens could be made to do the work that in the twin-lens two were doing, thus reducing the size of the box one-half. My first idea was to build a box on the plan of the ordinary hand camera and place a ground glass on the top. A mirror was then hung in the box at an angle of 45 degrees to the plate and adjusted as in the 'double decker,' but hinged at the back, so that it could be swung up out of the way and the exposure made on the plate at the rear. The lens shutter (a Prosch) was changed so that when open, one pressure of the bulb closed the shutter and released the mirror, which, by means of a spring, flew up and remained clamped to the inside of the top of the box, and shutting out any light that might come in through the ground glass there. A second pressure of the bulb made the exposure on the plate by opening and closing the shutter instantaneously.

The fault of this device was that light came in through the ground glass at the top while the mirror was raising and fogged the plate. To avoid this, a red ground glass was put in, but, in

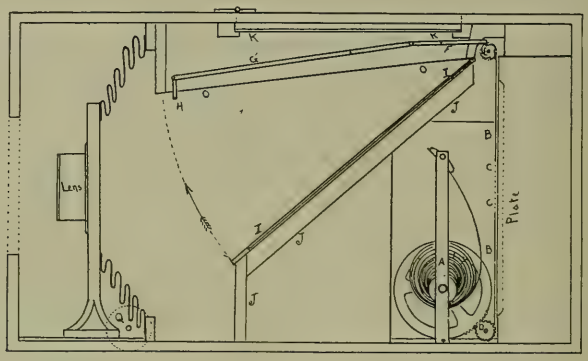

FIG. 1. INTERIOR OF RIGHT SIDE OF MIRROR CAMERA (HOOD CLOSED)

focusing, the image appeared so faintly upon it that I concluded this would not answer. I finally hit upon the focal plane shutter, and this solved the difficulty.

There is nothing new about the focal plane, or curtain shutter; it has been in use for years; but the one I have employed differs from the one made by the Thornton-Pickard people in that the spring is not coiled in the roller, on the plan of a Hartshorn shade roller, but is on the side of the box, where it is attached to double cogs, as shown in Fig. 1, A. This is stronger than the coiled spring, and gives a more uniform tension and consequently a more even exposure.

The focal plane shutter may be used in front of or immediately behind the lens, or just in front of the plate. In the camera here described, as may be seen by reference to the illustration (Fig. 1, B, B), the curtain works just in advance of the plate and as close to it as possible. The curtain is provided with an adjustable slot (Fig. 1, C to C), which may be widened or narrowed down as circumstances require. The slot forms the speeder, for obviously the narrower the slot the less the time of exposure while the slot is traveling down across the plate, and vice versa. The curtain works upon two rollers (Fig. 1, D and E). To make the exposure the curtain is wound up on the upper roller, E, by turning a key fast to the roller, E, and projecting through to the outside of the box.

As the curtain is rolled upon the upper roller the tension is increased upon the clock spring attached to the large cogwheel

which works upon the smaller cogwheel, which is fast to the end of the lower roller, D. If the key were freed, the lower roller would at once revolve and pull down the curtain from the upper roller and the curtain would then be wound upon the lower roller again.

The upper roller is furnished with a cog attachment, and a small lever (Fig. 1, F) catches into each cog as the roller is wound up and keeps the roller from turning back. In this way the curtain is wound up on the upper roller and held there.

The small lever or catch (Fig. 1, F) is attached to a longer lever (Fig. 1, G). When the distant end (H) of the long lever is raised a little the end of the small lever at E is forced upwards and releases the roller, and the tension of the spring below winds the curtain back upon the lower roller.

A mirror (I, I) set in a light wooden frame is hinged at the upper end and rests upon a bed of felt-covered strips of wood all around (J, J, J). The mirror is hung at an angle of 45 degrees to the plate, and is placed so that the distance from the lens to the surface of the mirror and up again to a ground glass (Fig. 1, K K) set into the top of the box, is the same distance in a straight line from the lens to the plate. The image comes through the lens upon the mirror and is reflected upwards upon the ground glass, where it is properly focused by means of the ordinary rack and pinion attachment (Fig. 1, Q).

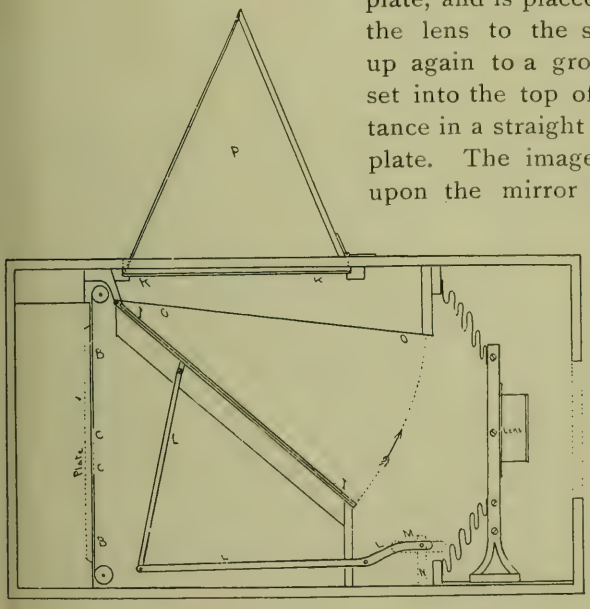

FIG. 2. INTERIOR OF LEFT SIDE OF MIRROR CAMERA (HOOD RAISED)

The mirror is raised by means of the combination of levers (Fig. 2, L, L, L). A spur attached to this lever at M projects through the side of the box and works up and down in a slot (N) cut there for its reception. When the spur of the lever is pressed downwards the mirror (Fig. 2, I, I) is raised and closes tightly upon a felt-lined and light-proof bed (O, O) upon the inside of the top of the box and surrounding the ground glass.

Just as the mirror closes upon the bed (O, O) the end of the lever (H) is forced upwards, the catch at E holding the cog on the upper roller is released, and the slot in the curtain passes downwards across the plate and makes the exposure. The ground glass (K, K) is protected with a four-sided pyramidal hood (Fig. 2, P) with a slot in the top to look through (Fig. 3, A). This shuts out all the light from above and gives the operator a good opportunity to focus sharply upon the ground glass inside. When not in use the four sides, being hinged at their bases, fold down upon the ground glass and are out of the way.

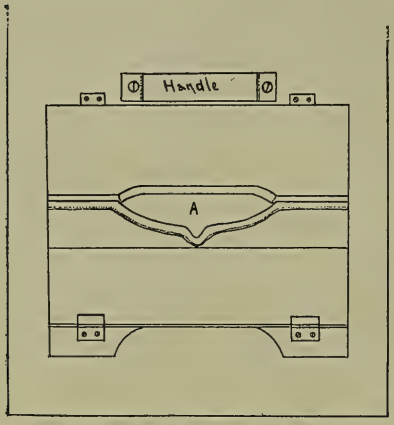

FIG. 3. VIEW OP HOOD (OPENED) FOR GROUND GLASS OF MIRROR CAMERA

The bottom of the box is provided with a nut for the reception of a tripod screw, and the curtain, when rolled up as far as it will go, rolls entirely out of the way. The mirror may then be raised and held there by means of a small sliding attachment to hold down the spur of the lever at M, Fig. 2; and the box may be used as an ordinary camera by operating a shutter attached to the front of the lens.

This camera thus contains all the advantages of the ordinary hand camera, with the additional features of the full-sized finder and focusing attachment.

To make a shot the camera is held in the hands and the image is focused sharply upon the ground glass. The curtain is already rolled up and the slide drawn from the plate-holder. The plate is in no danger of being light-struck from within, as it is protected by the light-proof curtain. The spur of the lever projecting through the side of the box (M, Fig. 2) is simply pressed downwards with the thumb, the mirror raises out of the way of direct communication between the lens and the plate, and just as it closes upon the light-tight bed at the top, the curtain drops and the slot, passing across the face of the plate, makes the exposure.

Thus far I have used this camera largely upon animals, but as an illustration of its effectiveness on birds I may describe the manner in which the accompanying picture of Wild Geese (see frontispiece) was made.

These birds, although in one of the ponds of Central Park, New York City, are by no means tame, and a close approach to them is

possible only by means of a boat. A tripod camera would, under the circumstances, be useless, nor could one focus a camera held in the hands, then insert a plate-holder, draw the slide and make the exposure, for the reason that the rapid motion of the geese and pursuing boat requires constant adjustment of focus.

A wide-angle, short focus or set focus, snap-shot camera would give too small and too distorted an image to be desirable, while an attempt to guess at the distance in focusing the long focus lens required for bird photography would result in failure ninety-nine times out of a hundred.

But with this mirror camera the focus was easily obtained with the 10-inch Swift lens employed, and the moment the birds appeared sharp on the ground glass the lever was pressed down, mirror thrown up, curtain released, and exposure made, all in the same fraction of a second.

Photographing a Robin

BY A. L. PRINCEHORN, Glen Island, N. Y.

Illustrated by photographs from nature by the author

ROBIN FEEDING YOUNG

IN THE latter part of April, 1898, I noticed a Robin carrying straws to the sill of a window of the Museum building of Glen Island, but, as the wind blew the straw away almost as fast as it was deposited, she was somewhat puzzled, and tried the next window, with the same result.

That evening, with the object of helping her, I nailed a narrow strip of wood to the edge of the sill which had the most straws deposited upon it, and the following day she resumed work, apparently appreciating the help I had given her, and adopted that window for her nesting-site. The work now progressed rapidly, and in a few days the nest was completed.

My next thought was to obtain a photograph of the bird and nest; but, as the window was far from the ground, I was obliged to make exposures from the inside of the house, and consequently against the light.

ROBIN FEEDING YOUNG

The bird was quite shy at first, leaving the nest as soon as she heard a step in the room, but as we were careful not to disturb her more than was necessary, she soon became more accustomed to our presence, and would remain on the nest while we walked past the window, although she was always very much on the alert.

When the birds were hatched I ventured to open the window during the parents' absence in search of food, and, having previously focused the camera on the nest, concealed myself and waited for the return of the old bird. The female soon returned, but did not seem at all pleased with the change, appearing quite anxious and nervous. The next day she was more at her ease, and I eventually succeeded in securing a series of photographs of her and her young.

ROBIN FEEDING YOUNG

How a Marsh Hawk Grows

BY P. B. PEABODY, Hallock, Minnesota

With photographs from nature by the author

EVEN so cosmopolitan a bird as the Marsh Hawk must have idiosyncrasies of his own. We talk of uniformity in Nature; but it is diversity that persists, and that proves itself at once the law of life and the zest of study. Nevertheless, to the uninitiated, all Hawks are Hawks; and the wanton who unskilfully shoots a Marsh Hawk on the wing because it is a Hawk, and just to see it drop, lacks, probably, the sense to perceive his utter lawlessness. But let him spend a season on the broad prairie, noting, the while, the many fascinating ways of this most picturesque of prairie birds; and he will thereafter, when afield, drop quickly the gun-muzzle that springs up so instinctively when the bird rises at his feet: the naturalist dominating the bird-killer when he realizes what it is that wafts itself with such nonchalant grace before him.

No mere sportsman can know with what enthusiasm we greet the first old male Marsh Hawk, when winter snows are disappearing and some long drive across the willow-clad waste reveals that exquisite gray bird rising and falling, feather-like, upon the horizon line. And when, some ten days later, his somber mate rejoins him, our recollection kindles as we look backward and recall the days when, driving, road-free, through fallow and brushland knoll and willow-stretch, with instinct trained almost into intuition, our startled horse recoiled from the weather-beaten sitter that rose, a yard before the horse's nose, to vent her cackling displeasure in many an impudent swoop at the intruder's head.

PRAIRIE WHERE MARSH HAWKS NEST

The blurred object at the center of the picture is a Marsh Hawk arising from its nest

Whoever saw a Marsh Hawk building her nest? Not many of us. One single recollection of a female, bearing a large weed-stem in her talons and sweeping, more swiftly than the wind that bore her, across a well grazed meadow, to drop the stick, without a pause, at the nest-site; this is the one germane fact that the writer has to offer. One is sure that the whole process is carried on and

completed in utmost secrecy. After the first eggs are laid, however, the devoted pair so demean themselves that one with even a slight experience in Marsh Hawk ways need spend but a half-hour, at almost any time of day, in locating a Marsh Hawk nest within his horizon.

Three distinct forms of nesting site are observable on the northern Minnesota prairies: low spots in fallow fields, or in meadowy prairie expanses, wherein the grass grows rankly; narrow sconces, amid tiny willow clumps; and, sometimes, brushland knolls, tributary to the feeding grounds. The two open sites, apparently equally favored, seem to be much preferred to the brushy coverts; but this preference may be apparent only as one sees better and further on the open land. Probably the low, weedy and grassy areas on fallow ground are more used than any other sites along the Red River of the North; for here there is abundant run-way and hide-way for the growing Hawklets; while the favorite forms of food (field-mice and spermophiles), though not more common than on the meadows and the prairies, are, as a rule, more easily seen and taken on these open hunting grounds. And this certitude and nearness of food must be a prime consideration in the nest-locating; for when there are from three to eight insatiable maws for two mortal parent Hawks to fill, the economic question must rule,—even with the birds. Two exceptional sites must here be noted; both found, curiously enough, on the same day and but eighty rods apart. Each was placed on the level upland prairie, amid scanty growth, and was made flimsily of weeds; each set consisted of six eggs; and all the eggs were exquisitely marked.

It is first in the choice of its nesting sites and then in the whole conduct of its domestic economies, that the wonderful diversity of the Marsh Hawk from its congeners constantly appears. I never yet saw a pair of Marsh Hawks, or a brood of young, and I have seen very many of both, that did not show surprising individualisms that have added incalculably to the pleasure of summer bird studies.

There is a wide variance in the amount of nest material, and in the depth and tidiness of the nest. On higher land the nests are often the scantiest; the brushland nests consisting often of but a wisp of weedy material. Yet, curiously enough, the most elaborate and sumptuous nest I ever found was on a hazel knoll; the explanation for which lay, perhaps, in the fact that rain-spoiled hay-cocks of the previous season lay, in this case, just at hand. With this exception, it is the lowland nests that are built up most, these often rising to a foot in height. All nests in this region are made exclusively of grass and weed-stems.

Whatever the diversities of place and material, the dates of nest-finishing and egg-laying seem to be, in this region, remarkably uniform. Observations covering a dozen nests, and extended over a period embracing the first laying and a rather advanced stage of incubation, have given, as the result of careful calculation, the dates May 10–16 as those within which (barring sets manifestly belated) the first eggs are invariably laid, — this during four seasons, early and late, which makes it fairly plain that Marsh Hawks stay not for weather.

Probably the male Hawk does not feed his mate during the incubation period, since the two share the home duties of that season. But it would be most interesting to learn for how long periods they severally sit, and the hours of the day at which they relieve each other.

How many eggs, at each raising, does the Marsh Hawk lay? I ask not rhetorically, but for information. With us six eggs is the rule; sets of five are fairly common, and sets of four are rare. I have found in early June two sets, of two and three, respectively; these being, manifestly, the "sequelæ" of interruption or destruction.

NEST AND EIGHT EGGS OF MARSH HAWK

A most exceptional set of eight was found this season in a 50-foot meadow spot, near large willows, on the lowland flats. But even this case would seem to show the evils of over-production. For, of the eight eggs, one was crowded out of the nest and preserved; while from the seven eggs but three chicks were found when the spot was visited two weeks later. Had the three elder birds devoured the four younger? I have seen a two-thirds-grown Short-

eared Owl trying to swallow his little five-days-old brother; why might not, then, a fledgling Marsh Hawk turn cannibal?

The photographing of the above remarkable nest gave new and beautiful emphasis to a matter of incubation-economics that I have observed in this region, as an absolutely uniform fact, with the

NEST AND EGG, AND MARSH HAWKS ABOUT ONE TO FOUR DAYS OLD
Photographed from nature by E. G. Tabor, Meridian, N. Y.

Bobolink, the Meadowlark and the Marsh Hawk; but to which I have yet never seen attention drawn by any writer or observer. This fact was the more interesting in that I did not notice how carefully the eggs were arranged to secure greatest uniformity of heating from the mother's body until the negative had been developed.

In this region all the species noted above lay, normally, six eggs, and these eggs I have invariably found arranged in two rows of three each. In case of the Bobolinks and Meadowlarks, the two rows are always 'in line' with the entrances, and these birds, when observed on the nest, were always sitting with their heads peering out over their door-steps. In case of the nest of eight eggs noted above, it will be seen from the illustration that two of the eggs lie, each, in the junction between the sets of four that lie nearest together. What a startling revelation, by the way, might be made should some future development of X-ray photography make it possible for one to photograph, for instance, a Sora Rail, sitting on her sixteen eggs in one of our northern marshes?

When once the eggs of the Marsh Hawk begin to hatch — and

they are hatched one day apart — nest-finding is easy. On one occasion I saw a male Marsh Hawk flying heavily westward, a quarter of a mile away, carrying what afterward proved to be leopard spermophile. Steadily I watched him until he had passed the open fields and meadows and reached an open space between two poplar and willow 'bluffs.' He was then more than half a mile away. Suddenly, from the ground below him, rose his mate, with most exquisite grace, catching, with her feet upward, the prey that he dropped to her when she was a few feet below him. With slight detour, she went at once to the nest; to which I also went, well-nigh as directly, locating the nest before I reached it, in the little cluster of willows just beneath the bird.

One brood of birds reared in such a site as this, on a vacant section of land amid the fields, I believe to have been reared by the female alone. In forty days of occasional study I never saw or heard the male. This nest, found when the first egg was hatching, has formed the basis of all subsequent study as to ages, and relative feather-growth; so that the most of what follows will group the facts portrayed about this family, though other broods have supplied their quota of interesting things.

I have never detected any difference in the foods brought to the young at the various stages of their growth. Smaller morsels for the smaller birds, and that seems all. Among the ejecta analyzed have been found the remains of field-mice, leopard frogs, leopard and striped spermophiles; and, I am compelled to confess it, young Pinnated Grouse. Of these, three skeletons have been found. In the main, the male is the hunter. This habit of dropping the quarry to the nest, or to the mate, is rather common — I having, while half concealed in my buggy by dense brush, seen the male approach an open area beyond, hardly two hundred feet away, and drop the game to his mate from a height of fifty feet above her, she then carrying it a hundred yards away, to the nest — the only nest I ever failed to find.

In two weeks after birth the birds grow lanky. About this time they begin to make run-ways from the nest, to eat their food in seclusion, or to find a better shade from the heat of a June sun. At about three weeks the flight-feathers begin to sprout, and the lusty young things, prone enough to hide along their run-ways at two weeks old, become now more bold, yet no less inclined to slink away the minute one's back is turned. After this age the photographing of these birds becomes a science by itself — requiring cool, sunny days, abundant patience, and no end of plates. The mosquitoes and the blue-bottle flies, both being faithful retainers at the Marsh Hawk's

courts: the intense heat, which makes the birds loll and fidget; the pleasant effluvium, evidencing garter-snakes, and such like, and above all, the habit the birds have of sneaking away just as one has them nicely posed,—these are some of the amenities of this sort of photography. Yet there are compensations. Call it hypnosis, or what you will, the young birds, until thirty-five days old, when the feathers are quite fully grown, show themselves to be most patient sitters, even when, to speak Irishly, they are lying on their backs. All this, if one keeps his eye upon them. Thus, one four weeks' old bird lay on his back not less than twenty minutes in the blazing sun with his

MARSH HAWKS, 24 DAYS OLD

eyes wide open, the blue-bottles buzzing about his head, and the mosquitoes plying their beaks upon his cere. At this age the young birds seem to become quite inured to the sun, yet they now spend most of their time at some distance from the nest—from ten to fifty feet—the paths that they severally and collectively use becoming by this time well beaten and strewn with pellets and the cast-off elements of their plumage.

At about thirty-four days the first real attempt at flight begins. No longer now, when the young bird is traced to his lair, will he throw himself upon his back, in open-beaked defiance; but he rises at once just from under one's feet, and flaps, not ungracefully, along the grass or bush-tops. At about forty days from birth the young make fairly long flights, rising even above the tree-tops, amid which some of them have been reared.

Such is the life-history of a young Marsh Hawk—from egg to air. Thirty days in the shell, and forty days a'growing—after who knows how many days of site-surveying and nest-building, in all

nearly three months of domestic toil and devotion on the part of its parents. No wonder that both the parents and the young should cling to the dear, familiar spot. No wonder that the parents should return, year by year, to the hunting range they know so well; and that even the young, when freed from the trammels of their lairs, should yet come back, for days, as I have seen them do, and haunt the spot wherein they gained their bulk, strengthened their sinews and fortified their wings for freedom. Yet the daily lengthened flight transforms the hasty flapping of the short-tailed tyro into the steadier poise of the practiced wingster; and soon the brown birds, old and young, have left the gray ones to brave the autumn air—and have gone afar to fatten on the southern fields.

MARSH HAWKS, 34 DAYS OLD

The Egret Hunters of Venezuela

BY GEORGE K. CHERRIE

Curator of Birds, Brooklyn Institute of Arts and Sciences

THE country on both sides of the River Apure and its tributaries is low and flat, with innumerable swamps and marshes. This country of *llanos* is the Egret country, comparatively few plumes being collected in the valley of the Orinoco proper. The center of the plume industry is at San Fernando de Apure, where almost every business house, of whatever character, has a prominent sign before its door of "Aqui se compra PLUMAS" (Plumes are bought here). I have visited San Fernando twice during my stay of a year and a half in this region, and each time counted about fifty bungos which were employed by their owners in plume hunting.

These plume hunters' bungos are, as a rule, long, light dugout canoes, with an arched covering like a wagon top for full a third of their length, made of light matched lumber so as to keep provisions and plumes dry. This word regarding the style of covering, or *carosas* of these canoes may not be amiss, inasmuch as the ordinary *carosa* is made of palm leaves and would soon be torn and become leaky by the constant pushing through the tangle of the forest swamps.

The methods employed by some of the native plume-hunters may explain some of the stories about plumes only being gathered at the heronries after being molted by the birds. An ordinary native's household furniture consists of a few pots and pans, hammocks, and a blanket for each member of the family; a small native cedar wood-box, or trunk, containing the family wardrobe and valuables. These are all easily embarked in a bungo, with provisions of *casava* and dried salt meat. The hunter and his family embark and work their way up or down the river and back, through the swamps and marshes, to the heronries, where they live until their provisions, or the Herons, are exhausted.

While in the heronries the man shoots every Egret that he can possibly secure, while the women and children employ themselves by picking up such plumes as are to be found under the trees and along the edges of the ponds and marshes. Every sort of plume is taken, good, bad and indifferent; long and short, dirty and clean.

At the houses of the principal plume merchants in San Fernando

one will see a long table where the plumes are being carefully sorted into various grades, according to their length and condition. These grades are then made up into little bundles, an inch and a half or two inches in diameter, and tied at the base. In order to permit of this sorting, the plumes taken from freshly killed birds are not removed, as they are by Florida plumers, by the cutting away of a patch of skin from which they grew, but are pulled out either singly or in little bunches, or sometimes they are cut off close to the skin.

From a mounted specimen.

SNOWY HERON, OR EGRET, IN NESTING PLUMAGE

Concerning the Egret farms said to be established in Venezuela, the only farming of the kind I saw or heard of was of the same character as the numerous *Parrot farms* I observed! In nearly every native house one sees from one to half a dozen Parrots, and it is also not uncommon to see two or three Egrets picketed in front of a rancho; a string two or three feet long being tied around one leg and attached to a stake; while, to make escape more difficult, the wings are usually cut off at the carpal joint.

Nearly every river steamer from San Fernando carries from one to a dozen of these maimed birds to Bolivar or Port-of-Spain, Trinidad, to be disposed of to tourists or others, who have not an opportunity to secure the birds for themselves. The soiled, worn and dirty plumes from these captive birds are sometimes taken, but Egret "farming" is no more of an industry than is Parrot "farming."

Two of several small river steamers that were formerly employed solely in plume hunting were owned by Americans who, to my personal knowledge, had gone out of the business and were employing their boats as freighters, for the reason that Egrets are becoming so scarce that it is no longer profitable for them to hunt them.

[Mr. Cherrie's observations in regard to the collecting of molted plumes show on what a slender basis of fact rests the assertion of milliners and others that "as Egrets' plumes are now gathered from the ground, the birds no longer being killed, they may be worn by the most tender-hearted woman." The truth is, that the gathering of shed plumes has absolutely no bearing on the question of the destruction of Herons. The hunter and his assistants pick up all the plumes they find and shoot all the birds they can, the ultimate result, in any case, being extermination of the plume-bearing birds.

The myth of the Egret "farm" is also illumined by Mr. Cherrie's article, but, like many another attractive lie, it will doubtless survive all attacks make upon it.—Ed.]

For Teachers and Students

Bird Work at Wellesley College

BY MARION E. HUBBARD

Instructor in Zoology at Wellesley College

BIRD study at Wellesley is a part of the course in general biology, and consists of field work, of lectures and of laboratory practice throughout the second half-year. Though, however, it is conducted by the department of zoology, and for the benefit of those students who elect that course, the lectures are open to all, and there exists throughout the college a genuine interest in the subject.

The facilities for this work at Wellesley are, for a college, unique. Lake, river and brook, grassy field and marshy meadow, deep wood and cultivated estate, orchard and clearing, hillside and swamp, make the situation singularly attractive, and tempt many birds of many kinds. Those which may easily be seen within a radius of half a mile from the main building number 89, and the list of those recorded within a radius of 8 miles includes 244.* This wealth of material would justify the devoting of time to a pursuit so delightful in itself, were there no educational advantages involved. But when we remember that bird study has been demonstrated to be one of the best of fields for the training of that accurate observation and that clear thinking which every beginner in scientific work must cultivate, the reason for its forming a part of a course on general biology is made clear.

Not less desirable than the mental training afforded by this pursuit is of course the cultivation of a spirit of friendliness and protection toward these 'brothers of the air.' All studies in natural history tend to develop in us the humane, but birds appeal so naturally and so powerfully to the gentler side of our natures that they need only be known to win love and protection. To interest women in living birds is the surest way to kill their interest in dead ones.

These, then, are the objects of the work,—the training of a quick and accurate eye, the developing of a thoughtful mind, and the rousing of a chivalrous spirit. And yet, while these aims con-

*See Morse's "Birds of Wellesley and Vicinity," pp. 7 and 51.

stitute the justification of the course, and form the mainspring of the methods of procedure, it must be confessed that when the time for action comes, pedagogical motives fly to the winds, and our only desire is to make other people see how much they miss by having no acquaintance with these friends. After all, if one really knows the birds, does not that signify all the rest? They themselves are the best educators, they are their own most eloquent advocates.

The chief aim being, then, to know the living bird, the greatest emphasis rests on field work. The 'walks' form the characteristic feature of the course. Once or twice in the early spring the girls by turns go out in squads of 8 or 9 with the instructor in charge, and when the warm days of May and June arrive, sometimes a whole division of 25 to 30 moves out of doors for its class appointment, to follow the sights and sounds of which those days are full. Most of the field work goes on, however, independent of the instructor, and so thorough is it that no Wellesley landscape in the spring would be complete without somewhere a motionless figure, gazing through opera glass intently into space.

The outdoor work is likely to be vague unless steps are taken to render it definite. One device which may be adopted is the use of charts for guiding and recording observations. We employ at Wellesley three such charts: the first presents and names the various colors with which the ornithological student needs to become familiar; the second deals with the seasonal distribution, showing in a graphic way the times of arrivals and departures; and the third is used as a check list. This last one, ruled in squares, contains at the top the names of the members of the class, and at the side the names of the birds which occur within a radius of 5 to 10 miles from the college as a centre. Each girl enters in the column below her name, in line with the name of the bird which she has seen, the date of her observation. Before she completes the course, she must have identified in the field a certain number of species. This total varies, of course, with the changing conditions of different seasons; last year it was 40,—a small number, it is true, but small because experience had shown that it is better to demand fewer than the majority can see.*

An excellent museum and an adequate library do much to simplify the task of identification. Just outside the laboratory stands a small case, in which are kept bird books, ranging from such classics

* It may be objected that to make any requirement takes away from the interest and spontaneity of the work. This, however, is not the case, as is proved by the fact that while pressure must exist for the few, it is needless for the majority, who observe more than the number fixed. To forego one's morning nap is not merely heroic, but is, in the case of many who do it, indicative of genuine interest in the subject.

as Wilson and Audubon, through encyclopedias like Newton's, to those works which in recent years have sprung up in answer to the call for 'handbooks.' Beside it is a reading table on which lie BIRD-LORE and other magazines, as well as the publications of the Audubon society. Each student possesses one book, either the 'Birds of Wellesley and Vicinity,' or one containing keys for identification.

Formal instruction is embodied in weekly lectures, to which come others than those who are members of the class. The object of these talks is to arouse an interest in the birds so great that it will be satisfied with nothing short of personal acquaintance with them in the field. They give, therefore, only such hints of the time and place for finding them, of their characteristic notes and habits, as will equip the student for outdoor work. Beginning in February with the winter population,—permanent residents, winter residents and visitants,—they constitute with the advance of the season a running calendar of the successive arrivals. Besides serving as formal introductions, they aim also to make the student more thoughtful, by presenting subjects of more general interest,—as migration, nesting, the adaptation of structure to habit and environment, and classification. Mounted specimens illustrate these talks, but, since they cannot easily be seen across the room, they are supplemented by colored crayon pictures drawn two or three times life size.

A second means of facilitating the field work is the frequent laboratory practice in description and identification. After each lecture specimens of the arrivals for that week are arranged in small glass cases, which admit of their being viewed from all sides. They are then placed where they will be accessible to all, and the colored pictures hang near, so that each one has a chance to become familiar with every bird. At irregular intervals their names are covered, they are rearranged in the cases, and there follows a test in rapid identification which is either the delight or the despair of the would-be ornithologist. The student learns at the start, and remembers by later practice, how to describe correctly a bird's appearance. She learns in addition how to identify by the aid of keys, particularly such as can be used in the field. These exercises in the laboratory, by training the eye, save much time in the recognition of birds, and this is essential for one so busy as is the college girl. Besides this 'rapid-fire' practice in description and identification, there are at intervals quizzes, both oral and written, which cover points of structure, of adaptation to habit and environment, and the general characters of the most important orders and families.

Since Wellesley is naturally so favored, it is worth our while to

make it as far as possible a veritable paradise for birds. We try, therefore, not only to keep them, but also to make the grounds even more attractive than nature formed them. The edict has gone forth that all cats walking upon the grounds do so at their own peril. Red squirrels and English sparrows are made to feel at times that a price is set upon their heads. A generous friend has given in the last two years a large number of bird-attracting trees, which have been set out in some of the favorite resorts. Holes in one of the large barns will offer a home for Swallows, and bird houses, it is hoped, will attract those whose eyes are open for the sign, 'To Let.' On one or two spots stand shelters where, especially in the winter, the birds may find food, these shelters answering the purpose of the 'soup kitchens' in our large cities. There exist, in addition, numerous private charitable enterprises, which have in many cases made the recipients quite tame.

It is comparatively easy to arouse enthusiasm on this subject, but the rub comes in adding to it definite knowledge and the spirit of thoughtfulness. The lack of these elements is what makes the bird 'faddist.' It is all very well to wax eloquent over the Bluebird and the Chickadee, but it must be somewhat dampening to enthusiasm not to know a Bluebird from a Bluejay or a Chickadee from a Nuthatch. The same difficulties beset bird study at Wellesley which we meet in the study of general biology, and which probably exist in the study of any subject anywhere,—namely, indefiniteness, whether in observation or in knowledge, and thoughtlessness as to what is seen.

There is no absolute remedy for these defects, but they may be reduced to a minimum by directing carefully and rather minutely the observations, and by insisting constantly upon accurate results. After the ordinary methods, both in the field and in the laboratory, any device which will secure the desired end is welcome, especially if it brings in variety. The little game of guessing a bird by a description of its markings or structure or habits, or the reverse of this, guessing by the 'twenty-question' method, is admirable, for it requires as much ready knowledge in a college girl as it does in primary children. This year the field notes will include answers to a posted set of questions, dealing with the structure and habits and relations of some of our common representatives. These questions will serve the double purpose of showing the student how to work, and of giving her definite, tangible material for the understanding of some of the more general subjects of interest in ornithology. Each student, moreover, will 'adopt' one bird, to study it fully, in its structure, its habits, its nesting, its food, its song, and its relation to its own

family and order. From this as a center will radiate the knowledge of other birds, both of individuals and of their relations with one another and with the rest of nature.

Bird study at Wellesley is, of course, not ideal, either in its methods or in its results. Even when we make allowance for improvement in the future, by the introduction of other and new ideas, we must remember that the best bird work takes time and a sense of leisure which under present conditions we cannot expect in a college. But though the course is imperfect, it is worth the effort, if only because it brings to so many girls a fresh and a keen delight, and because it opens to them an endless field of pleasure for their after-college days.

Spring Migration Tables

GIVING AVERAGE DATES OF ARRIVAL OF BIRDS AT PORTLAND, CONN., AND OBERLIN, O.

SPRING MIGRATION AT PORTLAND, CONN.

BY JOHN H. SAGE

FEBRUARY 15 to 28

Woodcock, Purple Grackle, Robin.

MARCH 1 to 10

Hooded Merganser, Flicker, Phœbe, Red-winged Blackbird, Song Sparrow, Fox Sparrow.

MARCH 10 to 20

Black Duck, Canada Goose, Wilson's Snipe, Mourning Dove, Cooper's Hawk, Meadowlark, Purple Finch.

MARCH 20 to 31

Wood Duck, American Golden-eye, Buffle-head, Old-squaw, Horned Lark, Cowbird, Rusty Blackbird.

APRIL 1 to 10

Horned Grebe, Baldpate, Green-winged Teal, American Bittern, Great Blue Heron, Wilson's Snipe, Marsh Hawk, Sharp-shinned Hawk, Osprey, Yellow-bellied Sapsucker, Kingfisher, Vesper Sparrow, Savanna Sparrow, Chipping Sparrow, Field Sparrow, Tree Swallow, Pine Warbler, Ruby-crowned Kinglet, Hermit Thrush.

APRIL 10 to 20

Holbœll's Grebe, Pied-billed Grebe, Broad-winged Hawk, Swamp Sparrow, Purple Martin, Barn Swallow, Bank Swallow, Yellow Palm Warbler, Louisiana Water Thrush.

APRIL 20 to 30

Green Heron, Black-crowned Night Heron, Spotted Sandpiper, Bald Eagle, Short-eared Owl, Whip-poor-will, Nighthawk, Chimney Swift, Kingbird, Least Flycatcher, White-throated Sparrow, Towhee, Red-eyed Vireo, Warbling Vireo, Yellow-throated Vireo, Blue-headed Vireo, Black and White Warbler, Myrtle Warbler, Black-throated Green Warbler, American Pipit, Brown Thrasher, House Wren.

MAY 1 to 10

American Coot, Solitary Sandpiper, Bartramian Sandpiper, Pigeon Hawk, Yellow-billed Cuckoo, Black-billed Cuckoo, Ruby-throated Hummingbird, Crested Flycatcher, Wood Pewee, Bobolink, Baltimore Oriole, Orchard Oriole, Grasshopper Sparrow, Rose-

breasted Grosbeak, Indigo Bunting, Scarlet Tanager, White-eyed Vireo, Worm-eating Warbler, Blue-winged Warbler, Golden-winged Warbler, Brewster's Warbler, Nashville Warbler, Parula Warbler, Yellow Warbler, Black-throated Blue Warbler, Black and Yellow Warbler, Chestnut-sided Warbler, Black-poll Warbler, Blackburnian Warbler, Prairie Warbler, Ovenbird, Water Thrush, Maryland Yellow-throat, Yellow-breasted Chat, Redstart, Catbird, Wood Thrush, Wilson's Thrush, Olive-backed Thrush.

MAY 10 to 20

Greater Yellow-legs, Least Sandpiper, Turnstone, White-crowned Sparrow, Tennessee Warbler, Cape May Warbler, Bay-breasted Warbler, Wilson's Warbler, Canadian Warbler, Blue-gray Gnatcatcher, Long-billed Marsh Wren, Gray-cheeked Thrush.

MAY 20 to 30

Semi-palmated Plover, Mourning Warbler.

SPRING MIGRATION AT OBERLIN, OHIO

BY LYNDS JONES

MARCH 1 to 10

Killdeer, Red-winged Blackbird, Rusty Blackbird, Meadow Lark, Bronzed Grackle, Robin, Bluebird.

MARCH 10 to 20

Canada Goose, Mourning Dove, Belted Kingfisher, Cowbird, Fox Sparrow, Towhee, Loggerhead Shrike.

MARCH 20 to 30

Great Blue Heron, Phœbe, Vesper Sparrow, Hermit Thrush.

APRIL 1 to 10

Pied-billed Grebe, Pectoral Sandpiper, Chipping Sparrow, Field Sparrow.

APRIL 10 to 20

Bartramian Sandpiper, Spotted Sandpiper, Yellow-bellied Sapsucker, Chimney Swift, White-throated Sparrow, Barn Swallow, Swamp Sparrow, Myrtle Warbler, Purple Martin, Brown Thrasher, Ruby-crowned Kinglet.

APRIL 20 to 30

Wilson's Snipe, Solitary Sandpiper, Kingbird, Crested Flycatcher, Least Flycatcher, Bobolink, Baltimore Oriole, Grasshopper Sparrow, Cliff Swallow, Bank Swallow, Scarlet Tanager, Red-eyed Vireo, Warbling Vireo, Black and White Warbler, Blue-winged Warbler, Nashville Warbler, Yellow Warbler, Black-throated Green Warbler, Palm Warbler, Ovenbird, Maryland Yellow-throat, Redstart, House Wren, Catbird, Wood Thrush, Wilson's Thrush, Olive-backed Thrush.

MAY 1 to 5

Orchard Oriole, Rose-breasted Grosbeak, Indigo Bunting, Yellow-breasted Chat, Yellow-throated Vireo, Cerulean Warbler, Blackburnian Warbler, Green-crested Flycatcher.

MAY 5 to 10

White-crowned Sparrow, Parula Warbler, Tennessee Warbler, Cape May Warbler, Bay-breasted Warbler, Black-throated Blue Warbler, Magnolia Warbler, Canadian Warbler.

MAY 10 to 15

Yellow-billed Cuckoo. Black-billed Cuckoo, Ruby-throated Hummingbird, Wood Pewee, Black-poll Warbler, Mourning Warbler.

MAY 15 to 20

Least Sandpiper, Traill's Flycatcher.

For Young Observers

The Wise Old Crow

GARRETT NEWKIRK

Not all the people know
The wisdom of the Crow:
As they see him come and go,
With verdict brief,
They say, "You thief!"
And wish him only woe.

That he's selfish we admit,
But he has a lot of grit,
And on favor not a bit
Does he depend;
Without a friend,
He must live by mother-wit.

The Crow is rather shy,
With a very watchful eye
For danger coming nigh,
And any one
Who bears a gun
He's pretty sure to spy.

The clever farmer's plan
Is to make a sort of ban,
By stuffing clothes with bran,
Topped with a tile
Of ancient style,
—A funny old scare-crow man.

The Crow looks on with scorn,
And early in the morn
Pulls up the farmer's corn:
He laughs at that,
The queer old hat,
Of the scare-crow man forlorn.

A YOUNG Observer who read the 'Hints to Young Bird Students,' published in BIRD-LORE for August, 1899, writes as follows: "I read an appeal signed by several prominent ornithologists, among them Mr. Brewster, calling upon the boys and girls in general to be more careful about their collecting of birds and eggs. I read this appeal with interest, and decided that it applied to me also; so I have determined to leave eggs strictly alone and study the habits of birds instead. I have a great respect for the birds of America."

Notes from Field and Study

Note on the Blue-Winged Warbler in New York City in Winter

On December 10, 1899, I was surprised to see in the hemlock woods at Bronx Park, New York city, a Blue-winged Warbler (*Helminthophila pinus*) hopping about in the bushes in a perfectly contented manner. It was not at all shy, so I had no difficulty in seeing it as much as I chose. On receiving the February number of BIRD-LORE, I saw that a bird of the same species had been found dead at the same place about a month later. As these birds generally leave the latitude of New York early in September, I think it more than probable that the same specimen was seen in December and found dead in January. — FLOYD C. NOBLE, *New York City.*

Notes on the Food of the Chickadee and Screech Owl

Birds are sometimes accused of injuring trees, eating fruit, or otherwise harming man, when, if the matter were investigated, the facts would be found quite the opposite.

One winter day, while passing some willows, I saw a Chickadee picking vigorously at — apparently — the buds. Surprised that this bird should prove injurious, I examined some of the buds more closely. In the angle formed where they lay upon the stem, nearly all had a row of tiny black insects, while those at which the Chickadee had been at work were cleared of these, though themselves uninjured.

Again, an acquaintance shot two Screech Owls as the first step toward destroying a little colony of them that was "driving away the small birds" from the village lawn near by. Upon opening the stomachs, they were found to contain only harvest-flies, fifteen in all, and every one in the pupa form in which they leave the earth. Probably the English Sparrows from the streets had far more to do with the driving away of the birds, but the Owls, busy destroying the injurious harvest-flies, got the blame. —ISABELLA MCC. LEMMON, *Englewood, N. J.*

Two Notes from the Berkshires

On December 3, 1899, I was in the woods along the Housatonic River observing the 'hoards' of White and Red-breasted Nuthatches, when I heard the familiar rattle of a Belted Kingfisher. Following the call, I scared the bird from some willows on the bank. It was alone.

Later in the day I saw a strange Woodpecker on a tree higher up the river. It flew at once toward the woods, calling at every 'swoop.' I followed it, and as I was crossing the open meadow another one flew over my head, calling like the one I was following.

Their call, which they uttered on the trees as well as on the wing, consisted of one syllable. In the woods they were shy, and kept well to the tops of the trees.

From the glimpses I had of them and the description I made, I am convinced they were Arctic Three-toed Woodpeckers. One had a yellow head patch. — JOHN DENWOOD, *Pittsfield, Mass.*

Additional Notes on the Season's Flight of Crossbills

We have continued to receive many notes on the unusual abundance of Crossbills during the present winter, from which we abstract the following in regard to the White-winged Crossbill: John H. Sage writes from Portland, Conn., that on February 12 he saw more than a thousand of these birds, with about as many Pine Finches; George P. Ells reports them from Norwalk, Conn., under date of March 7; nine birds appeared in the Norway spruce trees at Englewood, N. J., on February 21, where from three to thirteen have since been

observed daily; and William L. Baily, Samuel H. Barker and Witmer Stone report their abundance in the vicinity of Philadelphia, where they were first observed late in December. South of this point no reports of White-winged Crossbills have been received, Dr. Fisher writing from Washington that none have been observed in the region about that city. At McConnellsville, Ohio, C. A. Morris reports that three White-winged Crossbills were observed on November 19, 1899.—Frank M. Chapman.

NEST OF YELLOW WARBLER

An Interesting Nest

A correspondent recently requested us to identify a nest which she had found in a willow bush on one of the Thousand Islands, and which she described as pensile, with a cover, and having the entrance at one side! This was evidently so unlike the nest of any of our eastern birds that we asked to have it forwarded for examination, the results of which, with a photograph of the nest, are appended: The nest was undoubtedly built by a Yellow Warbler. Probably before it was fully completed, since there appears to be no lining, a Cowbird laid an egg in it. This caused the Warbler to build a platform or second bottom over the unwelcome egg, with the intention of placing a second nest on the first one. This second nest, for some unknown reason, was never completed, and its bottom formed the "cover" to the first nest.

Subsequently, a deer mouse — probably — discovered the concealed egg or eggs and reached them by making an opening in the side of the nest, traces of his feast being still evident in the shape of dried albumen on the floor of the nest. —Frank M. Chapman.

The Bird Protection Fund

The treasurer of the fund for the protection of Gulls and Terns reports that subscriptions amounting to $477 have been received in sums from one dollar to one hundred dollars.

The bird statutes of Maine, Massachusetts, New York, New Jersey, Maryland and Virginia afford protection to all species of Terns during the breeding season, and arrangements are now being made in each of these states to employ responsible and fearless wardens to enforce the bird statutes, and it is believed that before the next breeding season opens suitable guardians will be secured for each of the few remaining colonies.—William Dutcher, *525 Manhattan avenue, New York City,*

Bird Slaughter in Delaware

From Milford, Delaware, comes the news that a New York house—"Al. Richardson & Co."—has placed an order in that town for 20,000 birds, to be delivered within two months. A strong effort is being made by Mr. Witmer Stone, Chairman of the A. O. U. Committee on Bird Protection, to prevent this destruction of bird-life by enforcing the laws of the State of Delaware, and it is hoped that every one who can assist Mr. Stone will communicate with him at the Academy of Natural Sciences, Philadelphia.

The Hoar Bill

Senator Hoar has apparently again failed to secure the passage by Congress of his bird protective measure. The clause prohibiting the importation of the plumage of foreign birds has aroused the opposition of a number of prominent naturalists, who assert their belief that the enactment of this law would result in an increased demand for the plumage of native birds.

Book News and Reviews

The Birds of Berkshire County, Massachusetts. By Walter Faxon and Ralph Hoffmann. Reprinted from Collections of the Berkshire Historical and Scientific Society. Vol. III, pp. 109–166, Pittsfield, Mass., Feb. 23, 1900.

The authors state that the "information which they have obtained concerning the birds of Berkshire county is the result of several summers' study in various parts of the county, particularly at North Adams and Stockbridge, and of visits made to the same places in winter. Repeated visits have also been made in the spring and autumn, especially to Lanesboro, where the broad valley, serving as a highway for migrating birds, offers exceptional facilities for the observation of transients." They have also "supplemented their personal knowledge with whatever trustworthy information they could obtain from others," and have availed themselves of the published records of previous writers whose works are enumerated in a bibliography containing forty titles and occupying the concluding six pages of their paper.

An introduction of eight pages gives a clear and comprehensive description of the chief topographical features of Berkshire county and of its faunal characteristics, with particular reference to the Canadian element of the higher attitudes.

The list proper, occupying pages 9 to 53, enumerates 197 species, the times of arrival and departure and manner of occurrence of which are briefly stated.

The authors' names are an assurance that their paper adequately and accurately sets forth the existing knowledge of the birds of their chosen field, and our only criticism would question the advisability of introducing nomenclatural novelties into a paper of this kind, or, for that matter, into a paper of any kind without a word of explanation for their adoption. —F. M. C.

Preliminary Catalogue of the Birds of Chapel Hill, N. C., with Brief Notes on Some of the Species. By T. Gilbert Pearson. Journal of the Elisha Mitchell Scientific Society, XVI, pp. 33–51.

Professor Pearson presents this list as a basis for more extended observations on the birds of the region to which it relates. It enumerates 134 species, each of which is briefly annotated. Due conservatism is shown in excluding species of doubtful occurrence, and the *Spizella pallida* recorded by Atkinson from Chapel Hill in 1887, is shown to be a Swamp Sparrow! —F. M. C.

Gleanings from Nature. By W. S. Blatchley. Indianapolis, The Nature Study Publishing Co., 1899. 12mo. pp. 348; numerous illustrations. $1.25.

This is a true outdoor book, with chapters on fishes, snakes, plants, birds, caves and cave animals, and essays on walks afield under such titles as 'Harbingers of Spring,' 'A Day in a Tamarack Swamp,' etc.

The bird student will find some sixty pages devoted to 'Twelve Winter Birds, while throughout the volume references are made to the birds observed, and under the heading of 'A Feathered Midget and its Nest' is an excellent account of the nesting of the Blue Gray Gnatcatcher. The book seems well designed to increase the pleasure and interests of an outing.—F. M. C.

Birds in Horticulture. By William E. Praeger. A paper read before the State Horticultural Society, at Springfield, Ill., December 26, 1899.

The author of this paper is evidently thoroughly familiar with his subject and presents the results of the studies of economic ornithologists and entomologists in such a graphic and convincing manner that no one can read his remarks without being impressed by the incalculable value of birds to our agricultural interests. —F. M. C.

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Edited by FRANK M. CHAPMAN

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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand.

THE amendment to the law designed to protect non-game birds by making the possession of their plumage an actionable offense, which was introduced into the New York assembly on January 15, 1900, by Assemblyman Hallock, representing the New York State Audubon Society, has been heartily endorsed by those genuinely interested in the preservation of our birds, and as strongly opposed by others who imagined, rightly or wrongly, that it would interfere with their own selfish interests.

One critic, a collector of bird skins for alleged scientific purposes, stated that, in his opinion, this measure was "a high-handed attempt to confiscate the property of numerous bird lovers throughout the country," and congratulated himself that his collection of 2,000 birds' skins was not within the State of New York.

No less solicitous of their own welfare were the numerous women who asserted that the passage of the law would make them liable to fine should they wear the feathers of prohibited birds.

These protests, however, amounted to nothing as compared with the very definite and practical opposition which the proposed amendment encountered from Assemblyman Doughty, of Nassau county, a member of the Committee on Fisheries and Game. Mr. Doughty very plainly said that he thought the passage of this amendment would interfere with the business of his constituent and personal friend, Mr. Wilson, of Wantagh, Long Island, and that he should therefore do all he could to defeat it. It will be remembered that this Wilson is one of the largest dealers in native birds' skins in this country; and he it is who sends out bird-slaughtering expeditions along our coasts (see BIRD-LORE, December, 1899, page 198, and February, 1900, page 11).

Mr. Doughty's opposition was found to relate to the supposed protection by the amendment of Gulls and Terns These birds, it seems, are Mr. Wilson's especial *desiderata* at present, and as his business interests are of more importance to his representative than abstract questions of bird protection, Mr. Doughty re-affirmed his intention of defeating the amendment. If, however, its proposers would except Gulls and Terns from its workings he would urge a favorable and prompt report on it by the Assembly Committee on Fisheries and Game.

As a matter of fact, the amendment affects only those birds the killing of which is prohibited at all seasons, and, as under the section of the law relating to web-footed wildfowl, Gulls and Terns may be killed on Long Island from October 1 to May 1, they do not come within the provisions of the amendment. As a means, therefore, of saving the measure from certain defeat, the representatives of the Audubon Society accorded Mr. Doughty a nominal victory by conceding a point of no legal significance.

In the Senate, however, the words "Gulls and Terns" were stricken out; the Assembly accepted the change, and there is every prospect of the bill being passed.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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Fees and Pledges

Among the many perplexing problems that confront the organizers of bird protective societies, none are more fruitful sources of discussion and amiable disagreement than the question of to have, or not to have, fees and pledges.

It is a question, moreover, that may not be overlooked or set aside, as it involves two of the fundamentals of organization. Advocates for and against have equally plausible arguments, I grant, and yet, personally, I believe in fees—graded fees —and I do not believe in pledges—that is to say direct, cast iron ones. These qualifications need an explanation, and it will be more simple to consider the subjects separately — pledges first.

In asking people to coöperate in the cause of bird protection, the different methods of protection are usually fully set forth, and it must be evident to the dullest adult mind that feather-wearing and nest-robbing are two acts totally incompatible with Audubon membership. Understanding this, and yet signifying the desire to join the society, is it either necessary or wise to force the applicant to sign a pledge? Whatever may be said for the system, one fact I know, and that is that there are hundreds of consistent people who, of their own volition, have abandoned the use of any feathers other than ostrich plumes and the wings of food birds. Is it logical to ask them to publicly promise not to do something that they have no intention of doing?

Then, too, there is something disagreeably coercive to the American mind in signing, or promising away, even the smallest fraction of its liberty of action. Some of the most intelligently temperate people I know, with the most decided ideas upon the liquor traffic question, would as soon cut off their right hands

as sign a total abstinence pledge or encourage their children so to do. As in this, so it is in Audubon matters, and the only way to do permanent good is, on one side, to educate the moral nature so that it will not desire to do the wrong act, and on the other to work for the establishment and *enforcement* of laws that shall punish those who do the wrong.

I emphasize *enforcement*; as to legislate for laws that manifestly cannot be enforced is about as senseless a task as the traditional one of sweeping the wind off the roof.

The only case in which the signing of a card, other than one containing name and address and general interest of the would-be member in the motives and work of the society, seems desirable, is that of the Associate Junior members, and the reason for this comes more properly under the head of fees.

FEES

Two out of half a dozen reasons are sufficient to back the assertion that it is better to have fees—of a variety of grades to suit varied purses. Both reasons are intensely practical. 1. Money is absolutely necessary if the Audubon Societies are to do anything more than preach. 2. People feel a more keen personal interest in an object to which they have contributed something, no matter how small.

The oft repeated plea comes in at this juncture, "Is it logical to ask people, especially children, to pay for giving up something?" Yes, perfectly logical, if they regard the matter in the true missionary spirit, which, together with the idea of economic value of birds, is the real hold that Audubon work has upon the public.

"But people may desire to join, and lack even the money for a small fee," is the next objection. Any *adult* can give a small fee. Children, of course, in many cases, may not have more than a semi-occasional "candy penny" of which the sternest Audubonite would refuse to rob them, for a childhood deprived of its striped peppermint stick can only result in crabbed old age. The graded fee system, ranging from $25 to nothing, has a niche for this penniless class.

The fee system under which the Connecticut Society has run successfully for the two years of its life is as follows:

Patrons—Those members who pay $25 at one time.

Sustaining Members—Those who pay $5 annually.

Members—Those who pay $1 once for all and no annual dues.

Teachers—Those who pay 25 cts. once for all and no annual dues.

Juniors—Those who pay 10 cts. once for all and no annual dues.

These five classes receive equally the certificate of membership, which is printed on India paper and is suitable for framing, and the Juniors in addition, now have the Audubon button. A sixth class has been recently added, copied from a similar grade of the New York Society, Associate Junior Members, who sign a card, "I promise not to harm our birds or their eggs and to protect our birds whenever I am able" No fee is required, and in lieu of the certificate, an Audubon button is given as a reminder of the work.

This sixth grade has not been current long enough to judge fairly of the results, but several cases have come to my notice of "We would rather pay and get the certificate, please."

The money so raised, given cheerfully and without pressure, has enabled the Connecticut Society to issue satisfactory Bird Day Programmes (last year to 4,500 teachers), equip three expensive free lecture outfits with lanterns, colored slides, etc., and pay all current expenses *without begging*.

If all societies can collect sufficient money by graded fees to furnish themselves with a regular campaigning plant and wage the pleasant and profitable battle of instruction in each Audubon State, in ten years either their work will be so well done that there will be no further

need for it, or, failing this, there will be nothing to protect. In either case the time is *now*, and the price of success is not only an expenditure of sense, sentiment, practical economics, legal ardor, but hard-headed, cold cash!

Fellow Audubonites, face this issue! Do not spend so much time in crawling around it and nibbling the edges.

A well known public educator of St. Paul writes me, "We have now so much available material for nature study in our schools that, within about ten years, we should have the spirit of destruction changed into a spirit of protection." Yes, and the Audubon Societies must have fees in order to mould this material into an attractive shape that will appeal to the child, through its eye for the beautiful, and not in a study form, to add its weight to the intolerable burden of "lessons."

When the societies can do this they will have forgotten such things as Pledges.—M. O. W.

Reports of Societies

ILLINOIS SOCIETY

The work of the Illinois Audubon Society has gone steadily on during the past year. There are regular monthly meetings of the directors held during eight months of the year, with meetings for members and the general public in the spring and fall. The speakers at the public meetings this last year have been Rev. Jenkin Lloyd Jones and Mr. Frank E. Sanford, of our own Society, and Prof. O. G. Libby, of Wisconsin.

New branch societies have been formed in several towns, but this part of our work grows slowly, the southern part of the state being, as yet, entirely untouched.

Bird Day is, unfortunately, not established by law, but was observed by many of the schools where the teachers were personally interested in the work. It is possibly a question to be considered whether the school work of the humane societies with their "Bands of Mercy," and the work of the Junior Audubon Societies might not be united to the advantage of both, a multiplicity of pledges being unadvisable for children.

During the year new bird laws have been passed by our state legislature, conforming in many points to the model laws suggested by the A. O. U. Bird Protection committee. While we are thus fortunate in having reasonably good laws, the question of enforcing them seems a difficult one. "Test cases" will probably come sooner or later that will decide whether they are a "dead letter" or a "living epistle."

Thanks to the graceful and active pen of one of our directors, the subject of bird life is brought often to the notice of the public through the columns of the press, one recent result being the posting by two active bird lovers, of warnings to "all concerned," to leave unmolested the game up and down the wooded banks of the Desplaines river.

It is to be regretted that, in spite of game laws and Audubon Societies, birds are shot by men, in season and out of season, stoned by boys and worn by women. While we hear that the hats and bonnets of our women of the "middle-west" are not quite as bad as those of our eastern sisters, they are worse than they have been for years; though, perhaps, one sees fewer song birds.

Our present membership embraces some 772 adults and nearly 6,000 children, the latter being seemingly as difficult to count accurately as the birds themselves.

Since our spring meeting, April 13, we have sent out over 1,500 leaflets and are about sending out some 1,200 more. Only one new leaflet has been issued by the society during the year.

MARY DRUMMOND, *Sec'y.*

SOUTH CAROLINA SOCIETY

The South Carolina Audubon Society was organized at Charleston, January 4, 1900, with a membership of thirty-six. Miss Christie H. Poppenheim was elected president, and Miss L. A. Smyth, of Legare street, Charleston, secretary.

REFERENCES:
Importers and Traders National Bank, New York.
Steiner Bros., Bankers, Birmingham, Ala.
Henry Stern & Co., Boston, Mass.
Henry Stern & Co., New Orleans.
Crescent City Moss Gunery, New Orleans
Chas. Kahn, Jr. & Son, Cincinnati, Ohio.
Peter Schneider Sons & Co. N. Y.
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ESTABLISHED 1854.

LOUIS STERN,
COMMISSION MERCHANT
101 BEEKMAN STREET.

BIRDS SHOULD LOOK LIKE THIS WHEN CURED.

New York, September 7th, 1899.

Below I hand you prices for the following articles in our market. I always obtain for Shippers the highest market price on the arrival of goods. I want for immediate shipment the very largest Grey Gulls.

LAUGHING GULL, prime, nicely cured, clean and dry round skins,	35	Blackheaded Least Terns prime, nicely cured, clean and dry round skins,	25
ROYAL TERNS, " " " " " " " "	35	Greyheaded " " " " " " " " "	12
WILSON " " " " " " " " "	37	BARN OWLS, " " " " " " " " "	50
SEA SWALLOW, " " " " " " " "	35	OWLS of other species, (only large size) " " " " "	25
WHITE SEA PIGEONS" " " " " " "	10	GREBE SKINS, according to size and condition "	10-30
BLACK SEA " " " " " " " "	8	HERRING and LAUGHING GULL WINGS, per pair,	15
HERRING GULL,(or Storm Gulls)" " " " " "	40	ROYAL TERN WINGS, " "	15

If you are not familiar with curing ROUND BIRD SKINS, as picture of bird shown above, cut the whole wing off close from the body and take out wing bone, and then cut open the other joints and remove all the meat—then sprinkle with either plaster or arsenic on the wing in its original shape closed, and expose, same until dry. Be sure and do not break or spread the wing, and do not ship bodies after cutting wings off the following birds, only Herring, Laughing Gull and Royal Terns.

Express Birds and Grebe Skins packed either in light cases, or packed nicely and wrapped in burlap, so as to reduce expense in expressing, and you can also forward small lots of birds by mail wrapped either in heavy paper or light cloth and well tied. I also solicit your valued shipments for HONEY, WAX, WHITE HERON, (White Crane) EGRET PLUMES, LARGE BLUE CRANE SKINS WITH WINGS, ALLIGATOR SKINS, BEEF HIDES, GOAT, SHEEP, DEER SKINS and FUR. Also GREEN TURTLE and SALT WATER TERRAPIN to be shipped about the middle of November next.

I am, yours respectfully,

LOUIS STERN,
101 BEEKMAN STREET, New York City.

☞**DON'T SHIP FOLLOWING:** Small Blue Crane, Night Heron, Brown Egret, Surf Snipes, Water Turkey and Grosbeak.

Fac-simile, slightly reduced, of message-side of postal card sent out by feather dealer to Postmasters. It was the wholesale distribution of this, and similar circulars, which induced the Biological Survey, through the Department of Agriculture, to appeal to the Postmaster General to prohibit Postmasters from assisting feather dealers, with the gratifying results set forth below by Dr. Palmer, of the Biological Survey.

Protest against the Collection of Plume Birds through Postmasters

Some weeks ago the Department of Agriculture received information that preparations were being made to collect plume birds in large quantities in the Gulf States, and that cards had been sent out by a certain New York dealer to postmasters in the South, soliciting Gulls, Grebes, Owls, and other species now in demand for the millinery trade.

On January 27, 1900, the Secretary of Agriculture addressed a letter to the Postmaster General referring to the distribution of these cards, and requesting that postmasters be warned against aiding or engaging in the slaughter of birds. Attention was called to the State laws protecting birds, and especially to the acts of Florida and Texas prohibiting the killing of plume birds.

The Postmaster General promptly issued an order, directing the attention of postmasters to this letter, in which they were "expressly enjoined against being parties to any transaction that violates State law." The order and letter were published in full in the 'Postal Guide' for February, and thus brought to the notice of post office officials throughout the country.

One energetic postmaster in Maine at once contributed an article on protecting plume birds to his local paper, and some of the daily papers in Philadelphia and Washington commented on the novel plume-bird order. Thus through the medium of the Post Office Department, the attention of nearly 75,000 postmasters has been called to the laws protecting birds and the methods of the plume trade, while the general public has received another warning of the urgent necessity for more effective measures to prevent our plume birds from being exterminated in the interests of the millinery trade.—T. S. Palmer.

RUFFED GROUSE ON NEST

Photographed from nature, by E. G. Tabor Meridian, N. Y.

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. II JUNE, 1900 No. 3

Song-Birds in Europe and America*

BY ROBERT RIDGWAY

Curator of Birds, United States National Museum

IT has been repeatedly stated by writers who have had the opportunity of making the comparison, that the United States is very deficient in song-birds as compared with Europe — the British Islands in particular. One writer† even goes as far as to say that "it may be safely asserted that in the midland counties of England the Skylark alone, even in the month of March, sings more songs within the hearing of mankind than do all the songsters of the eastern United States" — which, of course, is an exaggeration. The same writer says: "It is, no doubt, very patriotic to prove that the woods and fields of North America are as vocal with bird song as those of England. The attempt has been made, but it is only necessary to cross the Atlantic, stay a month in the British Islands, and then return, taking frequent country walks on both sides of the water, to become convinced that the other side has all the advantage in quantity of bird song. Let us grant that the quality is equal — though it is difficult to understand where in America the peer of the Nightingale can be found — let us grant that the United States possesses a list of song-birds larger than that of the British Islands — all this does not prove that the quantity of bird song is greater. In England bird voices are everywhere. The Chaffinch is more abundant than the Sparrow save in the centers of cities, and his cheery notes can be heard at all times; the Robin Redbreast is common in suburb and village, and is not chary of his voice; and as for the Skylark — it is hard to go anywhere in the country without

*Parts of this article were published in the *Audubon Magazine*, Vol. I, 1887, page 127, but so much has been added and eliminated that in its present form it is essentially a different paper.

†W. H. Lockington, in *The Churchman*.

hearing them. How is it here? Does any one pretend that bird song is common in the suburbs of our cities? Do Robins and Catbirds, our most plentiful singing birds, often treat us to a song as we sit on the piazza of our semi-detached cottage, or as we walk adown the tree-lined streets?"

It is not stated in the article from which the above is quoted where the writer's observations in this country were made except that a "Pennsylvania wood" is incidentally referred to. It is difficult to believe, however, that he can have had much, if any, experience with more favored portions of our country, for his allegation certainly will not hold good for a large number of localities both east and west of the Alleghanies, however applicable it may be to the immediate vicinity of our larger eastern cities. His comparison is also unfair in that, while questioning the existence in America of any "peer of the Nightingale," he neglected to inquire where, in England — or the rest of Europe, for that matter — can be found even an approach to our Mockingbird,* although since it is tacitly granted that in the two countries the quality of bird song "is equal," we can afford to pass this by.

When we consider the unquestionable fact that in the eastern United States the number of species of song-birds is about twice as great as that belonging to the entire British Islands, there must, if the statement be true, be some reason why bird songs are so much more often heard there than here. The explanation seems to me very simple, three very different conditions which actually exist in the two countries being alone sufficient to produce the alleged result. These are: (1) the far more densely populated area of England, rendering it almost impossible for a bird to sing without being heard; (2) the greater protection there afforded song-birds in thickly settled districts; and (3) the conspicuous differences of climate, the moist and cool summers of England, permitting birds to be abroad and tuneful throughout the day, while our dry and scorching summer

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*The special merit of the Mockingbird's song is popularly supposed to consist in its imitative character, but this is far from being true. The Mockingbird is not so confirmed an imitator as he is given credit (or discredit) for; and many individuals, and the very best songsters, of the species rarely, if ever, imitate. Their own notes are so infinitely varied that persons not sufficiently familiar with birds' notes erroneously suppose many of them to be imitations.

A Patagonian species of Mockingbird (*Mimus triurus*) may, or may not, be superior to ours as a songster. I very much doubt if its song excels that of the best performers among our species. This is what an Englishman has to say regarding it:

"When I first heard this bird sing I felt convinced that no other feathered songster on the globe could compare with it; for, besides the faculty of reproducing the songs of other species, which it possesses in common with the Virginia Mockingbird, it has a song of its own which I believed to be matchless; and in this belief I was confirmed when shortly after hearing it I visited England and found of how much less account than this Patagonian bird, which no poet has ever praised, were the sweetest of the famed melodists of the Old World." (W. H. Hudson, Argentine Ornithology, Vol. I, p. 9.)

days compel our songsters to seek shelter and repose soon after sunrise, their singing being mostly done during the early morning hours, when people are sleeping most soundly!

In many thinly populated sections of our country thousands of bird songs are rarely heard by human ears. In the vicinity of all our cities, as well as most if not all of the smaller towns, the laws protecting song-birds are practically a 'dead letter,' the surrounding fields and woods being almost daily raided by the professional pot-hunter, the bird snarer, or boys with guns or bean-shooters.* In England, on the other hand, birds have for many generations been rigidly protected, until, in their almost absolute immunity from the perils to which they are in this country chiefly exposed, a much larger number have become accustomed to have confidence in mankind. Laws protecting all kinds of song-birds, and their nests and eggs, are there enforced with a strictness which is absolutely unknown in any portion of the United States; and, in numerous carefully policed public parks and thoroughfares and extensive private grounds, which ample wealth and long cultivation have made a veritable paradise for birds, they live in full knowledge of their security, with little to check their natural increase. The extreme scarcity of predatory birds and mammals, which have been for a long time nearly exterminated throughout England, has also assisted to bring about that affluence of bird-life which is so justly the pride of the English people.

The same abundance of bird-life could easily, by the same means, be secured in the United States. If anyone should doubt this, let him try the experiment and he will soon be convinced. I have done so for ten years, and the result was entirely satisfactory from the beginning, although the area upon which I could experiment was necessarily limited to my own grounds (only about half an acre in extent), and the birds have had much to contend with in the abundance of English Sparrows which continually harass the more domestic species, the frequent destruction of their eggs and young by red squirrels from an adjacent pine woods, and assassination by their arch enemies, the house cat and small boy, to which many birds that my wife and I had learned to know and love have fallen victims. All suburbs are more or less a "dumping ground" for superfluous city cats; ours is no exception to the rule, for these worse than useless creatures have at times fairly swarmed in our neighborhood. Of course we have done the best we could to protect the birds from these enemies, and with some success. We have also done all that

*This is certainly true of the suburbs of Washington, where the police force is not sufficient to properly patrol the outskirts of the city.

we could to attract them to our place: boxes and gourds (with holes too small to admit the English Sparrow) were placed here and there —the former on the veranda and on posts, the latter hung up in trees; shrubs, trees, and vines which bear their favorite fruits have been planted freely; and during the hot and dry season we place numerous pans and dishes in the shelter of the shrubbery, and these are kept filled with water for them to drink and bathe in. The result could scarcely have been more satisfactory, for the birds were quick to discover the preparations we had made for them, and each season they have increased in numbers and become more tame. We have House Wrens, Brown Thrashers, Catbirds, Chipping Sparrows, and Song Sparrows nesting within our grounds,* and each morning and evening dozens of Wood Thrushes, Vireos and other species from the adjacent woods and thickets visit the bathing dishes, several often disputing for the first bath. Here, in full view of the capitol dome, Washington monument, and other prominent buildings of the city, not less than thirty species of song-birds make their summer home in our immediate vicinity; not all of them are conspicuous songsters, but several of them are of the first rank and most of them are fairly common. Each morning in May and June and part of July we are awakened by a veritable flood of bird-melody, so loud, so rich, so ecstatic, that sleep would be impossible except to those who have no ear for sweet sounds or whose slumber is so deep that nothing short of a thunder-clap or earthquake would break it. This matin chorus is made up of many voices. There are Wood Thrushes (half-a-dozen or more), Brown Thrashers (several), Catbirds (several), a Robin or two, three or four House Wrens, a Carolina Wren, Cardinal, Chewink, Summer Tanager, Yellow-breasted Chat, Red-eyed, White-eyed, and Yellow-throated Vireos, Maryland Yellow-throat, Goldfinches, Song Sparrow, and Field Sparrow; also songsters of lesser merit, as Prairie Warbler, Chipping Sparrow and Ovenbird, though these are scarcely to be heard at all amid the din of louder voices. Besides these songsters, several other birds are heard whose notes are conspicuous, as the tender-voiced Wood Pewee, the cooing Dove, and the querulous Great-crested Flycatcher. In all, more than twenty species of true songsters and fully three times as many individual singers.

This matin chorus begins with the break of dawn and ends after

*On the afternoon of June 26, 1898, in company with two ornithological friends, I made a census of the birds seen in my yard during about half an hour's observation. Exactly twenty species were counted, the list being as follows: Hummingbird, Wood Pewee, Wood Thrush, Brown Thrasher, Catbird, House Wren, Prairie Warbler, Ovenbird, Warbling, Red-eyed, White-eyed, and Yellow-throated Vireos, Summer Tanager, Goldfinch, Chipping Sparrow, Indigo Bird, Cardinal, Chewink, Crow Blackbird, and Flicker. Besides these four others (Crow, Fish Crow, Turkey Buzzard, and Chimney Swift) were seen flying overhead or near by.

sunrise. I have never timed its duration, and can only say that the bird songs heard by people who are astir at the ordinary morning hours can give no idea of the richness of the full orchestra. By the time the sun has risen high enough to sensibly increase the heat the concert has quite subsided, and is not renewed till dawn of the following day. Only three or four species persist in singing during our hot summer days; the Summer Tanager is the most conspicuous, both from the vigor of his song and the richness of his coloring — I have often seen him perched, at midday, on the summit of a tall tree, his rich vermilion plumage resplendent in the full glare of the blazing sun, as he carolled his robin-like song. The Red-eyed Vireo is another, who sings cheerfully all day long as he carefully searches for worms and spiders among the leafy branches. The Yellow-breasted Chat, too, amuses himself (and others) with his odd cat-calls and whistlings, the Indigo Bird sings his sprightly ditty, and the Field Sparrow his plaintive chant. But during the day bird songs are with us intermittent or desultory, and there is nothing like the chorus of early morning. Unless the weather be showery, there is only one prominent regular evening songster. Then the Wood Thrush is at his best. As the Thrushes begin to quiet down the Ovenbird, or Golden-crowned Thrush, begins his exquisite vesper warble (often repeated through the night), so utterly different from his monotonous day-time song that one not knowing the singer would never suspect that it was the same bird. All through the night, whether moonlight or dark, clear or rainy, the Chat seems to be wide awake; perhaps he sings in his sleep; however this may be, no bird, not even the Nightingale itself, can be a more regular and persistent nocturnal songster; indeed this bird does most of his singing at night, though unfortunately his performance is anything but melodious. During the breeding season other songsters occasionally break the stillness of night with a brief outburst of song, as if unable to repress their happiness even during sleep; but, unlike the Chat, they do not go beyond one or two such ebullitions.

In other parts of our country the writer has, on many occasions, heard, early on mornings in May and June, grand concerts of bird music, which probably would challenge comparison, both as to quality and quantity, with any to be heard in other portions of the world, excepting, probably, the highlands of Mexico, which are said, and probably with truth, to be without a rival in both number and quality of songsters. The following list is copied from my note-book, and was made during the progress of such a concert, the birds named singing simultaneously in my immediate vicinity. The locality was not a particularly favorable one, being two miles from a small village, and

at least three-fourths of the surroundings either heavy forest or wooded swamp. The date, May 12, and the locality southwestern Indiana: Four Cardinals, three Indigo Buntings, numerous American Goldfinches, one White-eyed Vireo, one Maryland Yellowthroat, one Field Sparrow, one Carolina Wren, one Tufted Titmouse, one Gray-cheeked Thrush, one Yellow-breasted Chat, one Louisiana Water Thrush, one Red-eyed Vireo, and two Mourning Doves—in all thirteen species, and at least twice that number of individuals. And here is a list of birds heard singing together one day in June, about the edge of a prairie in southern Illinois: Two Mockingbirds, one Brown Thrasher, three Yellow-breasted Chats, one Warbling Vireo, one Baltimore Oriole, several Meadowlarks, numerous Dickcissels and Henslow's and Grasshopper Sparrows, one Lark Sparrow, one Robin, one Towhee, one Catbird, one Wood Thrush, one Ovenbird, one Summer Tanager, several Tufted Titmice, one Red-eyed Vireo, one Bell's Vireo, one White-eyed Vireo, one Cardinal, one Indigo Bunting, two Maryland Yellowthroats, one Field Sparrow, and one Prairie Horned-Lark—the latter a true Lark, singing while suspended in mid-air, exactly in the manner of a Skylark; in all, twenty-five species and certainly not less than fifty individuals. Is such a rich medley of bird music often, if ever, excelled in England? It is true that neither the Skylark nor the Nightingale nor the Song Thrush were included, but they were each represented, and well represented, too; the first, if not by the Prairie Lark, whose manner of singing is identical, but whose song is comparatively feeble, then by the Meadowlark, of which Wilson—himself a Scotchman—says that, although it "cannot boast the *powers* of song" which distinguish the Skylark, "yet in richness of plumage as *well as sweetness of voice* * * * stands *eminently its superior*" (italics our own); the second by the Mockingbird, whose song is unrivalled for its combination of richness, variety, compass, volubility and vivacity; and the third by the Brown Thrasher, whose energetic, powerful and untiring melody is said to closely resemble in modulation that of the Song Thrush. Not less than half a dozen of the remaining species are songsters of very pronounced merit, probably equaling, in one quality or another of song, the best of European singers, excepting that celebrated trio, the Nightingale, Song Thrush and Skylark.

What Dr. Livingstone has said of African songsters applies equally well to those of the eastern United States, where the summers are of tropical character. "The birds of the tropics," says he, "have generally been described as wanting in power of song. I was decidedly of opinion that this was not applicable to many parts of Londa, though birds there are remarkably scarce. Here [on the Zambesi,

below the falls] the chorus, or body of song, was not smaller in volume than it is in England * * * These African birds have not been wanting in song; they have only lacked poets to sing their praises, which ours have had from the time of Aristophanes downward. Ours have had both a classic and a modern interest to enhance their fame. *In hot, dry weather, or at midday when the sun is fierce, all are still;* let, however, a good shower fall, and all burst forth at once into merry lays and loving courtship."

In the eastern United States, however, the true period of bird song is the early morning. The outburst of melody which follows a shower at midday or evening, joyous though it be, is no more to be compared with it than the tuning up of an orchestra with the full performance.* This oratorio of our birds seems to be a serious business with them, as if the observance of a religious duty,—a matin greeting to the orb of day.

*Not only do our birds sing more vigorously and joyously in the early morning, but their songs are at that time far more perfect than those heard during full daytime. I find this entry in my note-book: "May 26, 1888. Was awakened about 4.15 A. M. by the song of a Robin, which continued with only momentary pauses, as if for breath, till 4.30 (actual time), when it suddenly ceased and the Catbirds began practicing their pieces. The morning dark and misty, with dense fog covering the lowlands and all out-of-doors thoroughly saturated by the steady drizzling rains of several days past. As heard thus early in the morning, the Robin's song is really worth listening to, being free from those interruptions and harsh interpolations which characterize it at other times."

YOUNG LEAST FLYCATCHERS AND NEST

Photographed rom nature, by P. B. Peabody, in Kittson Co., Minn.

The Kingfishers' Home Life

BY WILLIAM L. BAILY

With photographs from nature by the author

A HOLE in a bank seems a strange place in which to build a nest, but although one may know it to be the home of a Kingfisher, he little imagines the singular course of the passage leading to the room at the other end, and is hardly aware of the six long weeks of faithful care bestowed by the parent birds upon their eggs and family.

Early in April we may hear the Kingfisher's voice, sounding like a policeman's rattle as he patrols the stream, and we often see him leaving a favorite limb, where he has been keeping watch for some innocent minnow in the water below. Off he goes in his slaty blue coat, shaking his rattle and showing his top-heavy crest, his abnormal bill and pure white collar.

The mother bird, as usual with the sex, does most of the work at home. The hole is generally located high up on the bank, is somewhat less than four inches in diameter, and varies from at least five to eight feet in length. It slightly ascends to the dark, mysterious den at the other end,—dark because the passage generally bends

YOUNG KINGFISHERS, TWO DAYS OLD

once or twice, thereby entirely excluding the light. The roof of the passage is vaulted from end to end, merging into a domed ceiling almost as shapely as that of the Pantheon. Such a home is built to stay, and if undisturbed would endure for years. Two little tracks

are worn by the female's feet the full length of the tunnel, as she passes in and out.

The Kingfisher's knowledge of construction, her ingenious manner of hiding her eggs from molestation, and her constancy to her young, arouse our interest and admiration. We must also appreciate the

YOUNG KINGFISHERS, NINE DAYS OLD

difficulty with which the digging is attended, the meeting of frequent stones to block the work, which, by the way, may be the cause of the change in direction of the hole, but which I was inclined to believe intentional until I found a perfectly straight passage, in which a brood was successfully raised.

To get photographs of a series of the eggs and young was almost as difficult a task, I believe, as the Kingfisher had in making the hole. It was necessary to walk at least four miles and dig down to the back of the nest, through the bank above, and fill it in again four times without deranging the nest or frightening away the parent birds. But we are well repaid for the trouble, for the pictures accurately record what could not be described.

A photograph of the seven eggs was taken before they had even been touched, and numerous disgorgements of fish bones and scales show about the roomy apartment. The shapely domed ceiling, as well as the arch of the passage, is constructionally necessary for the safety of the occupants, the former being even more perfect than the pictures show. What is generally called instinct in birds has long since been to me a term used to explain what in reality is intelligence.

Some writer has mentioned that as soon as the young Kingfishers

are able, they wander about their little home until they are able to fly, but evidently his experience was limited. My four pictures of the young birds were taken by lifting them out of their nests and placing them in a proper place to be photographed in the light, but the first two pictures were taken in the positions in which they were naturally found in the nest. The first, when they were about two days old, was obtained on the 21st of May, 1899, and the young were not only found wrapped together in the nest, but the moment they were put on the ground, one at a time, though their eyes were still sealed, they immediately covered one another with their wings and wide bills, making such a tight ball that when any one shifted a leg, the whole mass would move like a single bird. This is a most

YOUNG KINGFISHERS, SIXTEEN DAYS OLD

sensible method of keeping warm, since the mother bird's legs are so short that she could not stand over them, but as they are protected from the wind and weather they have no need of her. Their appearance is comical in the extreme, and all out of proportion. This clinging to one another is apparently kept up for at least ten days, for a week later, when nine days old, they were found in exactly a similar position.

When the young were first observed they were absolutely naked, without the suggestion of a feather, and, unlike most young birds, showed no plumage of any kind until the regular final feathering, which was the same as that of the adult, began to appear. The growth of the birds was remarkably slow, and even when nine days old the feathers were just beginning to push through their tiny sheaths, but so distinctly showed their markings that I was able to distinguish the sexes by the coloring of the bands on the chest.

They did not open their mouths in the usual manner for food, but tried to pick up small objects from the ground, and one got another by his foot, as the picture shows. I took two other photographs the same day, showing several birds searching on the ground with their bills, as if they were already used to this manner of feeding.

When the birds were sixteen days old they had begun to look like formidable Kingfishers, with more shapely bills and crests, but as yet they evidently knew no use for their wings. They showed little temper, though they appeared to be somewhat surprised at being disturbed.

My next visit to the hole in the bank was when the birds were

YOUNG KINGFISHER, TWENTY-THREE DAYS OLD

twenty-three days old, and, to ascertain whether they were still at home, I poked into the entrance of the hole a long, thin twig, which was quickly accepted by quite a strong bite. Taking the precaution to stop the hole with a good-sized stone, I proceeded to my digging for the last time on the top of the bank. This time I found the chamber had been moved, and I had some difficulty in locating it about a foot higher up and about the same distance to one side. The old birds had evidently discovered my imperfectly closed back door, and either mistrusted its security, or else a heavy rain had soaked down into the loosened earth and caused them to make alterations. They had completely closed up the old chamber and packed it tightly with earth and disgorged fish bones.

The skill with which they met this emergency was of unusual

interest, showing, again, the ingenuity and genuine intelligence which so often surprises us in the study of birds. Their home was kept perfectly clean by its constant care-taker. One of the full-grown birds, with every feather, as far as I could see, entirely developed, sat just long enough for me to photograph him, and then flew from the branch where I had placed him, down the stream and out of sight, loudly chattering like an old bird. One more bird performed the same feat, but before I was able to get him on my plate. The rest I left in the nest, and no doubt they were all in the open air that warm, sunny day, before nightfall.

Swallows and Feathers

BY LAURA G. PAGE

HEN the Swallows returned, in the spring of 1897, they found me an invalid in a New Hampshire farm house. Every pleasant morning from the sunny piazza which fronted the south and looked out upon the barn, some rods away across the dooryard, I idly watched the birds as they flew in and out the great barn door or slipped through a broken pane in the window above.

One morning, soon after their arrival, a few of them flew down near the ground several times and tried to pick up a small feather. Then it occurred to me to try to help them. From a basket of feathers, in the woodshed close by, I took several and placed them on the grass a few yards from the piazza. No sooner had I resumed my seat than they were discovered. One Swallow had seen them and was flying swiftly back and forth above them, though lacking the courage to try to get one. After a moment he flew away to the barn, and soon came back with two others close behind him. He had evidently been to summon help. Thus reinforced, the three at once set about getting the feathers. First, one would dart swiftly across the yard, diving close to the ground as he went, and the others would follow in quick succession. This they repeated several times before one succeeded in seizing a feather. Then he triumphantly flew with it high into the air and headed for the barn, with both the other Swallows in hot pursuit. But he eluded them and disappeared through the door with his prize. After a few moments a company of Swallows came out of the barn and headed directly for the feathers, where the manœuvers were repeated.

After this I regularly provided feathers for them, and many an hour's entertainment did they furnish me, for I never tired of watching them.

They seldom failed to see a feather as soon as it was placed on the grass, and would begin to fly back and forth above it. At first they were a little shy and flew so rapidly they often missed their aim, but soon they learned to slacken speed as they dived for the feathers and would seize one nearly every time. I gradually decreased the distance from the piazza until, finally, they would come within three feet of me for them. They always took them on the wing, never alighting to pick them up.

It was an interesting sight when the successful bird was chased by the rest of the crowd. They usually came in squads of from three to six, and, in trying for the feathers, would fly in rapid succession, one after the other, each diving to the ground as he passed by. But as soon as one bird got a feather the others would all leave the field and give chase, and many a time they would press him so hard that in turning this way and that to evade them, the feather would slip from his beak. Then there was a whirling and scrambling for it! Sometimes the owner would catch it again, but more often another bird would snatch it and fly away, only to be pursued in his turn. I have seen a feather dropped and seized three or four times before the barn door was reached.

When the wind blew it was hard for a Swallow burdened with a feather to make headway against it. Often it would be wrested from his grasp and go sailing away in the air, only to be caught again and borne onward. Sometimes, if the bird had a firm hold of it, he would be turned completely around and even forced to fly backward for a moment.

One of the small 'shoe-shops' so common throughout some sections of New Hampshire thirty years ago, stood not far from the piazza, and to this low roof the Swallow would frequently carry his prize; here he would stop, turn the feather about or lay it down while he took a firmer hold of it, seizing it squarely in the middle. The other birds would alight on the roof near him, watching intently but not offering to touch it, until he was again on the wing, when they would instantly give chase.

Their selection of feathers was especially interesting; every Swallow tried for the largest. When several were put out at one time the smallest ones were always left till the last. In regard to color they were equally particular. At first I selected for them the softest and downiest feathers, whether brown or black or white; but the birds invariably chose the white ones and often refused the dark colors altogether.

After a time, instead of placing the feathers on the ground, I would toss one into the air for them as they approached. This pleased them best of all, and they seldom missed one unless the wind carried it back under the piazza, when in their frantic attempts to catch it ere it fell, the whir of wings would beat almost in my face. One day I saw a Swallow sitting on the weather vane which surmounted the barn, and tossed out a feather, wondering if he would notice it. The instant it left my hand he darted like an arrow across the dooryard, seized it before it touched the ground, and made off with it to the barn.

My appearance on the piazza was the signal for their approach. They seemed to be watching for me and would start at once toward the house, making a peculiar noise. Many a morning on going out I have found them flying to and fro before the door, calling for me, and the instant a feather was tossed in the air they would all dive for it, often coming close to me. Several attempts to have them take one from my hand were never quite successful; they would look longingly at it and fly back and forth *almost* near enough, but in the end their courage always failed them.

They were chiefly Barn Swallows, with their chestnut throats, glossy blue backs and forked tails, that came about the door. Occasionally a White-bellied, or Tree Swallow, or a Bank Swallow, in his dusky coat, would join the procession, circling swiftly before me; and a few times Eave Swallows were seen among the rest, the whitish crescent on the forehead making them easily conspicuous.

A surprisingly large number of feathers were carried off. One lady remarked that if they were all used for lining the nests the young ones would certainly be smothered. The morning was the busiest time, though occasionally the birds would come for them late in the afternoon.

For nearly three weeks this activity continued, but toward the end of May their visits became less frequent and with the coming of summer their time was given to feeding the young, whose heads could be seen protruding from every nest in the barn.

For Teachers and Students

How to Conduct Field Classes

BY FLORENCE MERRIAM BAILEY, Washington, D. C.

AS far back as 1886, when the Audubon movement was just beginning, the Smith College girls took to 'birding.' Before the birding began, however, behind the scenes, the two amateur ornithologists of the student body had laid deep, wily schemes. "Go to," said they; "we will start an Audubon Society. The birds must be protected; we must persuade the girls not to wear feathers on their hats." "We won't say too much about hats, though," these plotters went on. "We'll take the girls afield, and let them get acquainted with the birds. Then, of inborn necessity, they will wear feathers never more." So these guileful persons, having formally organized a Smith College Audubon Society for the Protection of Birds, put on their sunhats and called, "Come on, girls!" This they did with glee in their hearts, for it irked them to proclaim, "Behold, see, meditate upon this monster evil," while it gave them joy to say, "Come out under the sun-filled heavens and open your soul to the song of the Lark."

This, then, was the inspiration of the bird work that started up and spread so surprisingly, and was carried on with such eager enthusiasm in those early days at Smith. And this must be the inspiration of all successful field work, wherever it is done. A list of species is good to have, but without a knowledge of the birds themselves, it is like Emerson's Sparrow brought home without the river and sky. The true naturalist, like Audubon, will ever go to nature with open heart as well as mind.

Feeling this, the organizers of the Smith work persuaded John Burroughs to come to give it an impetus. When he took the girls to the woods at five o'clock in the morning, so many went that the bird had often flown before the rear guard arrived, but the fine enthusiasm of the man's spirit could not be missed. No one could come in touch with it without realizing that there was something in nature unguessed before, and worth attending to. And when the philosopher stood calmly beside a stump in the rain, naming unerringly each bird that crossed the sky, the lesson in observation, impressive as it was, was not merely one in keenness of vision. His attitude of stillness under the heavens made each one feel that 'by

lowly listening' she too might hear the right word—the message nature holds for each human heart.

This is important to emphasize now, when bird work, undertaken at first by nature lovers in a spirit of enthusiasm, is now, from its value, coming to take rank with other nature studies and be reduced to their formal basis. In learning the Latin names, let us not forget the live bird. The advance of ornithology, as well as our own good, demands this, for while the Latin names are already set down in the books, the knowledge of the life histories of even our common birds is painfully meager. Sympathetic, trustworthy observation and record of the habits of the living bird is what is most needed now.

Individual work is, of course, richest in results, but the enthusiasm roused by field classes should lead to that. In individual work the habits of the student will prevail. In field classes the plan followed will be modified by the possibilities in each case, for the classes will not always be formal ones, connected with a university course. At Smith, for instance, where the work was wholly apart from the curriculum, it was impossible for the two leaders to take out all those who wanted to go birding, so picking out the best observers, the leaders gave them special training, so that they were able to take out classes themselves. While perilous in one way—may the birds forgive the names given them!—this plan succeeded in giving a larger number an insight into nature work, and when at the end of the spring, the girls exclaimed with earnest gratitude that their eyes and ears had been unsealed, that a new world had been opened to them, it seemed that the work had not been in vain.

And since the college days I have learned that even a single walk afield may be worth while. On one such walk in New England, taken while the dew was on, at half past six by the town clock, the class included a man on a bicycle, two women in a carriage, and a blind lady. But the songs identified for the quick-eared blind lady, and the new interest put within the reach of those who could only ride to the woods, was surely worth the effort.

Regular classes are, of course, much more satisfactory in every way, for the student teacher is always haunted by the desire for results. When one can choose, field classes should begin in early spring, not too early, when the distracted leader drags her class miles over hill and dale to find one Junco, and comes home with a horrible feeling that it was all her fault the birds disregarded the calendar! Not too early, but not too late. Just early enough to find a few of the first spring birds, enough to arouse enthusiasm without giving the discouragement that comes to a beginner with the later confusion of tongues. In this event, even if the class meets but once a week,

a good object lesson will be given in migration, and the excitement of the new arrivals discovered at each outing will often lead to individual migration work between the meetings of the class.

If one must begin field work after the bulk of the birds have come, concentrate attention upon those most in evidence, or upon those which will make the most distinct impression upon the beginner. If you have a Scarlet Tanager and a flock of Warblers to choose from, let the class look at the Tanager. They will in spite of you, unless forcibly removed, but it is much better that they should. The wonderful color of the Tanager, his curious call, his thrilling song, the marvelously protective leaf tints of his mate, if she be near, will make an indelible impression upon them, and by rousing interest, lead eventually to the patient study of the obscure tree-top haunting Warblers. It requires no little moral effort for a class leader to stand quietly and look at even a Tanager when the trees are alive with Warblers she is eager to study, but, as in bringing up children, the training you have to give yourself is the biggest part. You must hold in abeyance all your own student instincts, and if your class is at the Chipping Sparrow stage, be content to fix your eyes on a Chipping Sparrow in the path when a bird you have never seen before is disappearing over the tree-tops. The one vital point is to *keep the class interested*, and if the interest would be killed by half an hour's chase after a bird in the underbrush, you must not go. Simply devote yourself to supplying material, the plainest of everyday birds, if they are the ones best fitted to the stage of training reached by the observer at that time.

The familiar rule, "Go to a good birdy place and sit down till the birds come," is one of the best of all field rules—with modifications. You cannot expect the beginner to penetrate to the heart of the woods and sit contentedly two hours gazing up at a hole in a tree trunk while the owner is brooding her eggs out of sight inside, and her mate roaming the forest; but by interspersing a judicious amount of tramping, even with the certain knowledge that unnoted birds are flying before you in all directions, your class will be well content to sit down and let the birds gather in the birdy places which you have chosen for them. And you need not begrudge the tramping, for to some classes whose acquaintance with afternoon teas is greater than with briar patches, jumping ditches and creeping under barbed-wire fences is valuable training.

The quiz method in field work, as in the class room, is the best. Stimulate thought; don't cram your pupils with statistics. But while teaching them to see for themselves, teach them to see the right things and, in obedience to the pedagogical rules, by constant com-

parison and repetition, and every possible device, impress the important characters of the different families and species. Compare tirelessly the red cap of the Chipping Sparrow, the spot on the breast of the Song Sparrow, the rufous back and red bill of the Field, the white throat and striped crown of the White-throat; the trill of the Chippy, the flowing song of the Song Sparrow, the characteristic whistles of the Field and White-throat; contrast the short wings, strong, conical, seed-cracking bills, and labored flight of the Sparrows with the long wings, weak, fly-catching bills, and free flight of the Swallows; calling attention to the musical songs of the Sparrows and the monosyllabic notes of the Flycatchers, and carrying out similar comparisons for each family seen in the field.

Out of doors, so many birds are of necessity seen in passing, that when field classes are not connected with house classes it is a great help to carry a box of skins—as much as possible those which will probably be seen on the day's walk—and before coming home review the birds seen by sitting down in the woods to examine the skins. It is also a good plan to carry a bird book afield—the pocket edition of Chapman's Handbook admirably serves this purpose—that the observer may look up doubtful points for himself while his mind is still full of questions.

Although the quiz method is the best, when the birds are flying about rapidly one cannot always wait for the untrained observer to seize upon the important characters. At such times a quick word will concentrate attention upon the salient feature, and the young observer can do his part afterwards by a note book sketch or memorandum. As a Brown Creeper rocks his way up a tree trunk in sight before passing on to one out of sight, quickly call attention to his protective tree trunk color, the adaptation of his curved bill and his long pointed tail, comparing him with the Sparrow seen before —the other brown bird—brown for his life on the ground and among the weeds, comparing, also, the Creeper's long, curved, insect-extracting bill with that of the Sparrows, and his climbing tail with the steering apparatus of the Sparrow. Then, for individuality, his systematic method of hunting, with that of the Woodpeckers. A line in the note book will show the curve of the bill, a slanted arrow between two vertical lines the oblique flight from the top of one tree to the bottom of the next. A horizontal breast line and an outline tail with white outer tail feathers opposite the name Junco will suggest the marking that disguises the Snowbird's form and also his directive tail mark; a chip-churr opposite the name Tanager and the words red and green will bring to mind the characteristic call and the sexual coloration of the pair; a musical phrase opposite

the name Chickadee will interest the musical student, while a rough outline sketch of the crest of the Waxwing, erect and flattened, will recall the bird's striking expression of emotion. Brief notes like these will serve to keep the observers' minds alert, and taken with their list of species seen, give something to distinguish and classify their birds by, on the return home.

Even with the superficial study of the field class, one will get hints of individual variation in song and habit. When in the field during the nesting season, the class leader should keep as large a calling list as possible, only taking care to guard the feelings of the timid householders. Nothing gives such a good idea of the bird's range of expression in movement, call, note, and song, and of its general intelligence and individuality, or awakens such sympathetic interest in bird life, as consecutive visits to a young family. These should be from the time of the building, when the happy pair are seen working together with rare skill upon their home, through the brooding, when the male feeds his mate and sings to her on the nest, or takes her place while she rests, to the days when the two are again working together caring for their hungry nestlings, and risking their lives, if need be, to guard them from harm.

I remember the delight of a class of Miss Porter's girls at Farmington over the discovery of a Kingfisher's nest in the river bank, and their enthusiasm over the pretty Redstart who would sit calmly in her nest over our heads as we looked up admiringly at her. And I also remember the satisfaction of a class of Hull House girls in their summer vacation home, over the old stub where the Red-headed Woodpeckers were feeding their young. While studying nests, a good way to rouse interest in individual work is to get the students to take photographs of the birds on their nests, for a great deal must necessarily be learned of 'bird ways,' before any good photographic results can be obtained.

Bird Study at Wood's Holl Marine Biological Laboratory

THE Nature-Study course to be inaugurated during the coming summer at Wood's Holl includes a course on birds under the direction of Dr. Thomas H. Montgomery, Jr., assisted by Drs. Whitman and Herrick and Messrs. Stone, Dearborn and Chapman. It will include field and laboratory work and lectures. In field work particular attention will be given to the habits of birds, their songs, modes of flight, etc., and each student will be required to keep a journal of observations.

For Young Observers

THE ORIGIN OF DICK CISSEL

Sir Richard Cecil was a knight of very high degree.
He came to preach some English fad in North Amerikey;
But a clever Indian medicine man transformed him to a bird,
With the funniest, drollest, dryest note that ever yet was heard:
And now he sings the livelong day, from mullein top or thistle,
The first of his intended speech, "Oh I am Dick, Dick Cissel."

ERNEST SETON-THOMPSON.

Notes from Field and Study

A Home-Loving Osprey

For several years the Ospreys whose nest is here figured built in a dead oak, in the pasture on the left, about a hundred feet from the road shown in the photograph, but when the property recently came into the possession of a new

OSPREYS' NEST
Photographed from nature by H. S. Hathaway

owner, he had the tree cut down, and in the spring of 1899 the birds started a nest on a pole nearer to the house than the one on which it is placed in the picture.

On this pole, however, there was a 'converter,' which the nest so interfered with that the owner had to tear the nest down. Then the birds repaired to the pole occupied in the photograph. I have learned that they did not rear a brood, but seemed very nervous, and would sit only for short periods.

The nest, as may be seen, is on a highway leading from the main road to the shore, and is placed on a pole carrying electric light wires to the house in the photograph. It is situated at Warwick Neck, R. I. — H. S. Hathaway, *Providence, R. I.*

Nesting of the Prothonotary Warbler

One of the most common birds of northeastern Louisiana is the Prothonotary Warbler. It can always be found in considerable numbers along the numerous bayous and lakes in this part of the State, but particularly in the large cypress swamps. I have found it nesting in all kinds of places. The most common place, however, is in knot-holes in fallen cypress logs. I have found the nests, also, in holes and corners in a large barn, also in rail fences, deserted Woodpecker holes, and in bird boxes.

These birds are very sociable, and come around the farm houses very often to build their nests. A good nesting place is very reluctantly deserted, and the birds will build their nests in the same hole year after year, even though disturbed.

Three nests in particular, I remember, were robbed year after year, two by snakes and one by a cat. The first one was under a large bridge, where there was a square hole in one of the posts, three feet above the running water; the second was in a square hole in a large post, supporting a Pigeon house, and the third was in a hanging flower box at the end of the piazza.

The nests of the Lettuce Bird, as it is commonly called here, are made from green moss, feathers, and any sort of soft material. The outside is always covered with green bark moss, and it is lined with horse hair.—Albert Ganier, *Vicksburg, Miss.*

The House Wren as a Depredator

Troglodytes aedon has made for himself a bad name in my immediate vicinage. One object in telling of his bad deeds is to find out if they are peculiar to this individual, as I trust may prove true, or whether other observers have had a like experience.

My Wren is a depredator; not a robber, but a spoiler. He does not take

other birds' eggs and eat them. He pierces them with his sharp little bill and throws them out of the nest.

My direct knowledge of this fact comes from his treatment of the Chipping Sparrow. I have seen the Wren throw the eggs of the latter out of the nest. My Wren-box is nailed against the lattice at the west end of a back piazza, where this lattice meets the side of the house. The place is really more a covered walk than a piazza, having on its outer side a long trellis covered with the wild ampelopsis. The Chipping Sparrows have taken this as a favorite building place, sometimes two pairs of them having their nests there at the same time. But whether these confiding 'chippies' build nearby to the brown spit-fire or farther away — even twenty feet off — he or she will not suffer them to go unmolested.

The Wrens have also taken the eggs from the nest of a Chipping Sparrow which built quite on the opposite side of the house.

Besides this direct evidence, I have also other which is circumstantial, but such circumstantial evidence as the bird-lover learns to put a high value upon. It is this: My Bluebirds chase the Wren,—crying, "stop thief, stop thief!" whenever they see him in the open. So also does my Baltimore Oriole, who returns to his elm on my premises every year. That the Robins do not chase the Grackles without reason we know and they know, to our mutual sorrow. I fear that the inference must stand in the case of these other birds and the House Wren. It is becoming a serious issue with me just what to do. I love the rollicking song of my fidgety Wrens. But I love, also, the quiet, patient *Spizella socialis*, even if she does seem to be lacking in gumption as to the locating of her nest, and even if one does feel occasionally, as he does with some unemotional people, as if he would like to stick a pin point into her and wake her up.

My Bluebirds also left me last summer, the first time in four years. I have a strong suspicion that the small marauder of this paper had something to do with their failure to return, and the question is whether I shall be compelled to take down my Wren-box.—John Hutchins, *Litchfield, Conn.*

A New Camera for Bird Photographers

Bird photographers will be interested to learn that essentially the same type of camera described by Mr. Rowley, in Bird-Lore for April, has been placed on the market by the Reflex Camera Company, of Yonkers, N. Y.

The Bird Protection Fund

Since the report of the Treasurer of this fund, in Bird-Lore for April, additional subscriptions have been received, and the fund now amounts to $1,300.

Every colony of Gulls and Terns that has been found from Virginia to Maine has been provided with a protector, and will receive all the protection that the laws of the various states in which they are located afford them. For one large colony of Herring Gulls and Terns in Maine, a warden has been employed who devotes his entire time to the work. At all the other colonies, only so much of the warden's time is engaged as will afford the necessary protection.

There is every reason to believe that all of the Gulls and Terns that breed between Virginia and Maine will, this year, be permitted to raise their young without being disturbed.

It is purposed that all of the breeding colonies shall be visited at the height of the breeding season by some member of the American Ornithologists' Union, who will inspect the work done by the protectors, and note the condition of the colonies.—William Dutcher, *525 Manhattan avenue, New York City.*

Arbor and Bird Day Proclamation

The Governor of the State of Wisconsin has issued an elaborately printed Arbor and Bird Day proclamation well calculated to attract attention to the importance of the occasion which it announces.

Book News and Reviews

British Birds' Nests, How, Where, and When to Find and Identify Them. By R. Kearton, F. Z. S., with an Introduction by R. Bowdler Sharpe, LL.D. Illustrated from photographs by C. Kearton. Cassell & Co Ltd. London, Paris, New York and Melbourne. 1898. 8vo, pp. xx + 368. Numerous halftones.

Our Rarer British Breeding Birds. Their Nests, Eggs and Summer Haunts. By Richard Kearton, F. Z.S. Illustrated from photographs by C. Kearton. Cassell & Co. Ltd. London, Paris, New York and Melbourne, 1899. 8vo, pp. xvi + 149. Numerous halftones.

In the first of these volumes, under an alphabetical arrangement, the authors describe and present photographs from nature of the nests of the British birds with whose breeding habits they were familiar at the time of its publication. In the second volume are included pictures of the nests, eggs or breeding haunts of nearly sixty species not pictorially represented in their earlier work, in the gathering of which the authors' journeys in England, Scotland, Ireland and Wales, footed up a total of about 10,000 miles.

The second work is, therefore, virtually a supplement to the first, and the two together constitute a practically complete guide to the subject of which they treat. The amount of labor involved in securing the material for these books can be appreciated only by the experienced; but that it is justified by the results must be admitted by everyone who compares these actual representations of the breeding haunts, nesting-sites, nests and eggs themselves, with the stereotyped phraseology and often execrably colored lithographs of egg-shells of the older oölogies.

From Kearton's 'Rarer British Breeding Birds'

DABCHICK'S NEST UNCOVERED

In their later volume the authors write from a broad experience of the need and methods of bird protection; and in numerous instances do not mention the localities in which they have found certain rare species breeding, for fear they will be exterminated by egg collectors. What a comment on the greed of the average oölogist! — F. M. C.

California Water Birds.—No. IV. Vicinity of Monterey in Autumn. By Leverett M. Loomis. Proc. Calif. Acad. Sciences. Third Series. Vol. II, No. 3, pp. 277–322.

In this paper Mr. Loomis continues his valuable studies of the movements of Water Birds off the coast of California, the period covered being from September 18 to November 14. A detailed account of the observations made is presented under dates and is followed by certain "conclusions" on various phenomena of bird migration under the headings 'Migration Northward After Breeding Season,' 'Guidance by Physical Phenomena,' 'Guidance by Old Birds,' 'Cause of Migration.'

Mr. Loomis' well-deserved reputation as a careful and discerning field ornithologist makes his observations an important contribution to our knowledge of existing conditions of bird migration, but in theorizing on the origin and manner of migration, he falls into the common error of attempting to explain the origin of a habit whose root is fixed in a past geological age, and whose growth has been governed by a thousand influences we know not of, by its present day manifestations—the last buds on the branch.

A study of the origin of bird migration must begin with the origin of flight itself: a faculty which provided the bird with a means of extending its range into regions made habitable by increased solar heat during a portion of each year. From this as a starting point and with the aid of data as yet to be furnished by the paleontologist, climatologist, geologist, and psychologist, the ornithologist may perhaps reason from cause to effect. In the meantime we cannot have too many studies of just the kind Mr. Loomis is making.—F. M. C.

Bird Studies With a Camera. With Introductory Chapters on the Outfit and Methods of the Bird Photographer. By Frank M. Chapman. Illustrated with over 100 photographs from nature by the Author. D. Appleton & Co., New York City. 1900. 12mo. Pages xvi + 218. Numerous half-tones. $1.75.

The Author of "Bird Studies With a Camera" is, without doubt, the best equipped writer in the country to handle the subject of bird photography, he holding the same place in America that the Kearton Brothers occupy in Great Britain. With a pleasing modesty in his preface, he claims for his book nothing more than "a contribution to an end," yet no amateur or professional photographer who reads its pages will fail to obtain many valuable hints which will prevent hours of wasted time, and loss of material and effort.

The introductory chapter treats of the scientific value and charm of bird photography, followed by an exhaustive review of "The Outfit and Methods of the Bird Photographer." An intelligent study of this chapter will not fail to direct any one who attempts nature study with a camera into a much smoother path than he could find for himself.

The remaining chapters are devoted to the field experiences of the author while securing the large series of bird photographs with which the volume is illustrated.

These experiences are told in such a pleasing and explicit way that the reader involuntarily wonders why *he* has never seen these charms in nature, and mentally thanks the author for showing him how to get nearer to nature's heart.

The volume merits a place in every home, because it advocates a love for and intimate knowledge of wild bird-life, and also because it will prove a boon to the thousands of amateur photographers of this country, by introducing them into the hitherto unknown paradise of animate nature.—W. D.

Book News

The April number of 'The Mayflower,' published by John Lewis Childs at Floral Park, L. I., appears with a department devoted to bird study, in which the editor takes a strong and commendable stand on the question of the destruction of birds for millinery purposes.

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Edited by FRANK M. CHAPMAN

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Bird-Lore's Motto:

A Bird in the Bush is Worth Two in the Hand.

ON page 98 we print a communication from the Millinery Merchants' Protective Association, the importance of which is obvious. It is addressed to William Dutcher and Witmer Stone, as representatives of the American Ornithologists' Union, and to the Audubon Societies, through the editor of this magazine. As the Audubon Societies, unfortunately, have no Federated Committee to which this matter could be referred for action, it will be necessary for each Society to consider the Milliners' proposition independently It is, therefore, requested that the matter receive the prompt and careful consideration which it so evidently deserves, and that the result of such consideration be communicated to the Editor of BIRD-LORE for transmission to the Secretary of the Milliners' Association.

Without attempting to weigh the merits of the proposed agreement, we would call the attention of the Audubon Societies to two points:

First. No definite time is mentioned when the plumage of North American birds will not be used by milliners, but on calling the attention of the Secretary of their association to this omission, he states that two fall seasons will be required to fully dispose of the stock on hand, and names January 1, 1902, as the final date when North American birds will be used by the members of the Milliners' Association.

Second. The Audubon Societies are asked only to use their best efforts to prevent the passage of laws prohibiting the use of the feathers of the "barnyard fowl, edible birds and game birds killed in their season, and all birds which are not North American birds." Doubtless many members of the Audubon Societies believe that foreign birds are fully as deserving of protection as are North American birds, and without for a moment denying the justice of the claim, we would ask them whether it is possible for us to make laws protecting foreign birds, and if, as we believe, it is not, should we sacrifice North American birds to a fruitless principle?

We cannot hope to abolish the trade in feathers, but if, by a concession, we can so control it that our native birds shall be exempt from its demands, we shall have afforded them a measure of protection we had not expected to secure in this generation nor the next.

We therefore bespeak for the Milliners' proposition such fair and unbiased treatment as will enable us to avail ourselves of its benefits

ASSEMBLYMAN HALLOCK deserves the thanks of all bird lovers for his efforts in securing the passage of the amendment to the law protecting non-game birds, which makes the sale or possession for sale of any part of certain protected birds an actionable offence. The enforcement of this law will assure complete protection for song-birds from the demands of commerce.

The Lacey bill passed Congress by a vote of 141 to 27. The bill (No. 6634) has been referred to the Senate Committee on Interstate Commerce, and it is hoped that all bird lovers will write Hon. Shelby M. Cullom, Chairman of this Committee, urging its passage without amendment.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor vet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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With names and addresses of their Secretaries'

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Encouraging Items

IN the last issue the question of pledges and fees was touched upon, and the decision based upon personal experience was given in favor of fees. It gives me great pleasure to find that the matter at issue is likely to stir up an amicable difference of opinion, and I gladly open the columns of this department to a discussion of the matter, Mr. Witmer Stone leading on behalf of the Pennsylvania Society in defence of the fee system.

Who will follow with an equally decided and tersely expressed plea for the other side? Such discussions are of infinite value to Audubonites as antidotes to a possible stagnation of ideas and methods.

APROPOS of the interchange of ideas, it was suggested several months ago, in these columns, that an Audubon conference would be helpful. It is now proposed to hold such a meeting in Boston, immediately before the convention of the American Ornithologists' Union, which will be held at Cambridge, Mass , in November.

All those to whom the matter has been broached are heartily in sympathy with the movement, and I should be glad to receive general expressions of opinion on this matter also, as a very general interest is necessary if the conference is to fulfil its purpose of bringing in personal touch the friends of bird protection to discuss the best methods of furthering its welfare.

IT is, indeed, cheering to record the organization of two new societies in very important bird states. Every one cognizant of the trend of the spring migration, as well as the recent attempt at wholesale slaughter in the interest of the millinery trade, must realize the cause for rejoicing that the accession of Delaware brings.

Kentucky, also, with its memories of Audubon and James Lane Allen's Cardinal, has fittingly joined the ranks, beginning its work by sending out printed warnings and freely posting the Bird Laws and the penalty for breaking them.

This is the season for garden classes and walking bird clubs of young people. If it is impossible to obtain the services of a professional bird student as a guide, an amateur, who knows but a score or two of birds, *if he is sure of his knowledge*, may give a great deal of pleasure to his friends, whose lists of positive acquaintances in the bird world can be counted on the ten fingers.

The Pennsylvania Society has had the good fortune to receive a bequest of $1,000 from Miss Gregg. We wish to remind our friends anywhere that it is not necessary that they should die in order to remember the Audubon Societies, and that we shall be doubly pleased to receive gifts of $1,000 or under during the lifetime of the donors.

M. O. W.

The Question of Fees

All Audubon Society directors, I am sure, read with much interest the article in April Bird-Lore relative to fees and pledges, and the argument in favor of fees as a means of paying expenses of the societies "without begging."

So far as I am aware the Pennsylvania Society is the only one that does not have regular fees, though many admit teachers and scholars free. As I was personally responsible for the free membership plan adopted by our society, I trust you will allow me a few words in explanation of our course and its results.

At the time the Pennsylvania Audubon Society was organized there was but one other such society in existence, and it was much harder to obtain members than it is today, when the principles of bird protection are better known. The success of the movement rested mainly upon the acquisition of a large membership, and it was felt that fees would defeat this object. It was further considered that those who could afford to pay fees would contribute voluntarily, and experiment proved the correctness of this view. The only "begging" that the society has done has been to state in its general circulars that its expenses were met by voluntary subscriptions, just as other societies print their lists of fees. One plan, no doubt, works better in one community and another in another, but the agreement is certainly not all on the side of a *fee* sytem.

The Pennsylvania Audubon Society has now some 5,000 members, and its annual reports speak for themselves as to its success.

The graded membership whereby some members get certificates and circulars, and others (school children) get only buttons, has one disadvantage, which I do not think has been noticed in the Bird-Lore articles, viz.; what becomes of school children members after they cease to be school children? The Pennsylvania Society has now a number of young ladies in its membership who joined as school children. Would they not have been lost to the society, in many cases, if they did not receive at least a yearly communication from headquarters? In the Pennsylvania Society *every member*, from school children to patrons, gets the society's report, with a ticket to the annual meeting, and there is probably nothing that will keep alive the interest of a widely scattered membership so well as this feeling of personal contact with the central office that is fostered by these yearly communications.

Sincerely yours,

Witmer Stone,
Pres. Pennsylvania Audubon Society.

Reports of Societies

DELAWARE SOCIETY

The Delaware Audubon Society was organized on Saturday, April 7, at the residence of Mrs. William S. Hilles, Delamore place, by the election of the following officers: President, Arthur R. Spaid; Secretary, Mrs. William S. Hilles; Treasurer, Mrs. Job H. Jackson The Board of Directors will consist of 12 members, four from

each county, and those selected for New Castle and Kent are: For New Castle, Walter D. Bush, Edward Bringhurst, Jr., Elwood Garrett of this city, and Miss Hetty Smith, of New Castle; for Kent, Mrs. J. B. Turner, Mrs. R. L. Holliday, John H. Bateman and Mrs. Fulton.

A constitution was adopted, following the lines of that of the Pennsylvania Society, the objects of the organization being the protection of birds and the discouraging of their use in wearing apparel and for the purposes of ornament.

About thirty persons attended the meeting, and others may join the society.

FLORIDA SOCIETY

MAITLAND, FLA., *March 2, 1900.*

An informal meeting of persons interested in the forming of a Florida Audubon Society was held at the residence of Mr. L. F. Dommerich, at 2:30 P. M. There were present Mr. and Mrs. Dommerich, Mr. and Mrs. Kingsmill Marrs, Mr. W. C. Comstock, Mrs. S. N. Bronson, Mrs. C. H. Hall, Mrs J. Vanderpool, Mr. and Mrs. T. P. Baumgarten, Mrs. Harry Beeman, Mr. and Mrs. G. M. Ward, Mrs. W. S. Harney and Mr. W. Wilson-Barker.

At the suggestion of Mr. L. F. Dommerich, Rev. Geo. M. Ward was made temporary chairman, and on further motion Mrs. L. F. Dommerich was asked to serve as secretary. Mrs. Dommerich was called upon to state the object of the meeting. A brief abstract of the case as presented is as follows: Attention was called to the destruction of song and plumage birds in this state, and to the work that had been done in other states in the work of protecting our feathered friends. Letters were read from parties interested in the formation of such a society in this state, and the most encouraging statements were offered regarding the promised support, both financial and moral, which would be forthcoming should such a society be formed. Mrs. Dommerich further stated that liberal subscriptions had already been received towards the expenses of such a society.

It was decided that it was the unanimous sense of this meeting that a society be formed in our own state. On motion of Mr. Dommerich, a committee of five was appointed by the chair to present a constitution and by-laws, together with a list of officers, for a Florida Audubon Society. The committee appointed consisted of Messrs. Dommerich, Baumgarten and Wilson-Barker, and Mrs. Marrs and Mrs. Bronson. After consultation, the above committee made its report, offering for the adoption of our society the by-laws of the New York State Society, suggesting such changes in the wording as were necessary to make said by-laws applicable to this state. On the list of officers the committee reported as follows: President, Rt. Rev. H. B. Whipple, D.D., LL.D., Bishop of Minnesota, Maitland. Honorary vice-presidents, Governor Wm. D. Bloxham, Tallahassee; Mr. Andrew E. Douglass, St. Augustine; Mr. Kirk Munroe, Cocoanut Grove. Chairman Executive Committee, Rev. Geo. M. Ward, Winter Park. Secretary and Treasurer, Mrs L. F. Dommerich.

On motion of Mrs. Dommerich, it was voted to send a copy of the report of this meeting to the vice-presidents and members of the Executive Committee who were not present on March 2, and to the various editors in the state. On motion of Mr. Baumgarten, it was voted to name as date for the annual meeting the first Tuesday in March. The report of the committee on constitution and by-laws, the list of officers and the date of the annual meeting were adopted

On further motion, a committee of five were appointed by the chair to draft a bill to be presented to the next Legislature. The chairman appointed Rt. Rev. H. B. Whipple, D.D., LL.D., Messrs. Baumgarten and Marrs, Mrs. Dommerich and Mrs. Comstock.

On motion, it was voted to purchase a suitable number of the pamphlets issued by the New York Society, describing the work of said Society, to be mailed with the copy of our constitution to parties desired as members.

On further motion, it was voted that a

letter be sent to the vice-presidents and members of the Executive Committee, embodying the wishes of the Society to the following effect: namely, that they should seek to increase the membership of the Florida Society, and arouse as much interest as possible in the work of protecting our feathered friends, and to interest persons in their own town to form a local society, and to interest all children in the neighborhood, and to urge that the city or town where they reside pass necessary ordinances to protect the birds, and further that all such officers report progress to the meetings of the state society.

On motion of Mr. Baumgarten, the meeting adjourned to the call of the Executive Committee.

MAITLAND, FLA., *March 30, 1900.*

MR. FRANK M. CHAPMAN.

My Dear Sir— I have been asked to send you a brief account of the organization of the Audubon Society of Florida.

We owe a debt of gratitude to Mrs. L. F. Dommerich for the interest which she has awakened for the protection of the birds of Florida. No state or territory in our country has been as richly endowed in plumage and song birds as this state. It has been the meeting place of tropical and northern birds.

At my first visit to Florida, fifty years ago, I saw at almost every turn on the St. John's river, the Pink and White Curlews, and scores of other brilliantly plumaged birds. Within the past twenty years I saw, on one occasion, in the woods bordering on Lake Jessup, not less than two thousand Paroquets.

Many of these beautiful creatures are no longer to be found, unless in the Everglades. The murderous work of extermination has been carried on by vandals, incited by the cupidity of traders who minister to the pride of thoughtless people.

Our best work will be through the teachers of the public schools, for they can reach the hearts of the children, who wantonly destroy both birds and eggs.

We have been delighted at the enthusiasm and interest exhibited by the people of Florida in this blessed work.

Our Saviour taught us that these feathered friends and companions of men are a special object of our Heavenly Father's care. And should he not have his children's help in their protection? With high regards, Yours faithfully,

H. B. WHIPPLE,
Bishop of Minnesota.

MINNESOTA SOCIETY

Our work goes on with many bright and cheery incidents, which show a gradual gain for the good work of bird protection. Many new branches have been established throughout the state, and many letters received from persons interested in the work shows that the circulars sent out are doing good. BIRD-LORE should be credited with much of it. Last spring we had Olive Thorne Miller with us, and her lecture course was well attended, giving us valuable assistance. While there are some discouraging days caused by the want of interest shown by some good women, who still wear upon their hats the bodies of our beautiful birds, we notice that the custom is decreasing, and Bird-Day law is introducing into our schools the study of ornithology.

JOHN W. TAYLOR, *Pres.*

KENTUCKY SOCIETY

It is with great pleasure that I write of the formation of the Audubon Society of Kentucky. We have taken hold of the work at once, directing our efforts first toward giving our birds protection under the law as it exists in our statute, and toward the encouragement of a healthy sentiment in the schools for bird life.

We have bought a large chart for use in the schools, and we propose two public meetings a year in addition to our educational and social meetings from time to time. Interest is manifested already.

We think we have made a happy choice in our president and vice-president, estimable ladies, discreet and tactful, and withal touched with the value of our work.

INGRAM CROCKETT, *Sec.*

A Letter from Governor Roosevelt

The following letter from Governor Roosevelt was read at the annual meeting of the New York State Audubon Society, held June 2, 1900, at the American Museum of Natural History:

Mr. Frank M. Chapman,
Chairman Executive Committee.

My dear Mr. Chapman:

* * * It was the greatest pleasure to sign the Hallock bill. Let me take this chance of writing a word to you in behalf of the work of your Society. It would be hard to overestimate the importance of its educational effects. Half, and more than half, the beauty of the woods and fields is gone when they lose the harmless wild things, while if we could only ever get our people to the point of taking a universal and thoroughly intelligent interest in the preservation of game birds and fish, the result would be an important addition to our food supply. Ultimately, people are sure to realize that to kill off all game birds and net out all fish streams is not much more sensible than it would be to kill off all our milch cows and brood mares. As for the birds that are the special object of the preservation of your Society, we should keep them just as we keep trees. They add immeasurably to the wholesome beauty of life. Faithfully yours,

(Signed) Theodore Roosevelt.

An Agreement*

Entered into between the members of The Millinery Merchants' Protective Association and others, regarding the importation, manufacture and sale of North American birds. Made Saturday, April 21, 1900.

The undersigned importers, manufacturers and dealers in raw and made fancy feathers do hereby pledge themselves not to kill or buy any more North American birds from hunters or such people who make it a business to destroy North American birds. However, we shall continue to manufacture, sell and dispose of all such North American birds and their plumage, as we now have in our stocks and warehouses, and shall so continue until Congress shall make such laws which shall protect all North American birds, and which laws shall be approved by the Audubon Society and the Ornithological Union, and also do justice to the trade. This does not refer to plumage or skins of barnyard fowl, edible birds or game birds killed in their season, nor to the birds or plumage of foreign countries *not* of the species of North American birds. Furthermore, it shall be our solemn duty not to assist any dealer or person to dispose of any of their North American birds, if same have been killed after this date.

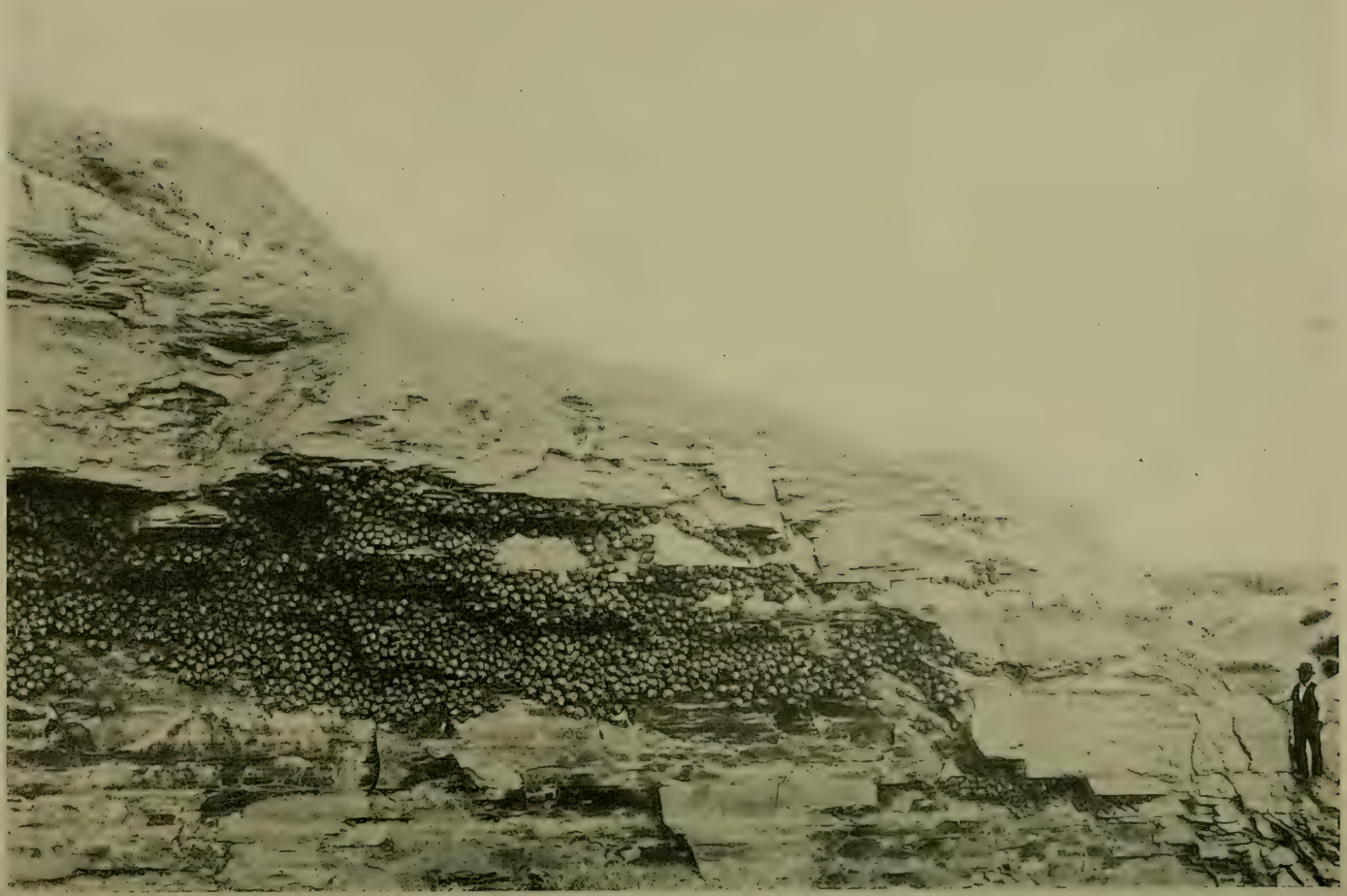
Any member of this organization violating this pledge, upon conviction shall be fined the sum of $500 for each offense. However, as there are several dealers who are not members of this organization and over whom we may not have any influence; therefore, should we find that these dealers are selling, killing or buying North American birds, we shall do all in our power to have them brought under the penalties of the various laws already existing.

In return for this pledge, we expect the Audubon Society and the Ornithological Union to pledge themselves to do all in their power to prevent laws being enacted in Congress, or in any of the States, which shall interfere with the manufacturing or selling of plumage or skins from barnyard fowl, edible birds and game birds killed in their season, and all birds which are not North American birds.

Resolved, That the Secretary be instructed to transmit a copy of this agreement to Messrs. Frank M. Chapman, of the Museum of Natural History; William Dutcher, of the New York Ornithological Union, and Witmer Stone, Chairman of the Executive Committee of the Ornithological Union, advising them of the action of the Association and asking their cooperation in carrying out the same.

Signed: Thomas H. Wood & Co., L. Henry & Co., Alfred L. Simon & Co., George Silva & Co, Wurzburger & Hecht, A. M. Levy, Max Herman & Co., Jos Rosenthal & Son, Blumenthal & Stiner, Lowenfels & Heilbroner, Philip Adelson & Bro., H. Hofheimer & Co., David Spero, George Legg, Zucker & Josephy, and many others.

*See Editorial, page 93.



NESTS OF CLIFF SWALLOWS

Photographed from nature by S. W. Williston, in Rush Co., Kan.

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. II AUGUST, 1900 No. 4

The Orientation of Birds*

BY CAPTAIN GABRIEL REYNAUD, French Army

Translated from the French by Mrs. Clara J. Coxe

HE question of the orientation of animals has given rise to many controversies, and the ideas expressed on this subject may be summed up in two theories. Some, with Spaulding, Russell, Wallace, and Croom Robertson, think that the faculty of orientation should be attributed to a particular acuteness of the five senses inherent in animals, they having ideas which only reach us through the medium of instruments of precision. Others consider that orientation brings into play a sixth sense, independent of the first five. Flaurens, Romanes, Henry Lordes, Goltz, Pflüger, Mach, Crum Brown, and Brand admit that this sense exists and has its seat in the semi-circular tubes of the ear.

These two opposed theories are each supported by unquestionable facts, apparently giving reason for the two schools. Now, there cannot be contradiction regarding facts.

If one unique law governs all the acts of orientation, these acts must all occur in the same way. If, when placed in different conditions, the animal has recourse to different methods of orientation, it indicates that the law which it obeys is no law.

We have bent all our attention to the observation of the facts. We have verified that our predecessors are not in harmony with each other, because the observations which had served them as a point of

*At the time this paper was written for BIRD-LORE, Captain Reynaud was in charge of the Homing Pigeon Service of the French Army. He subsequently was called on to establish a 'Pigeon Post' for the Compagnie Generale Transatlantique, and in the interests of this company has twice visited this country. His initial experiments in this connection are mentioned in this article. Later, we hope to receive from him a detailed account of his important attempts to increase the usefulness of the Homing Pigeon through careful training and selection.—ED.

departure were incomplete. Before entering upon the theory it might be as well to inquire a little into the practical working of orientation. The act of orientation is extremely difficult to observe. When an animal goes astray we know generally where he has been lost; but we do not know, very often, by what way he has reached that particular place. If we let loose a flock of Carrier Doves we soon lose sight of them, and we only find them again in the Dove cote.

Between the point of departure and the point of arrival there is a lacune for the observer. It is this gap we think we have succeeded in filling.

Basing ourselves on laws purely hypothetical at the beginning, we have succeeded in reconstituting the complete itinerary of animals closely observed, to follow them, in a way, step by step. We have equally studied the fault of instinct, the error of orientation, and we have verified that the puzzled animal obeys the rules, confirming the laws which we are going to formulate.

We had at our disposal a grand field for observation. M. le Ministre de la Guerre gave us the task of constructing a movable Pigeon cote, which represents the practical illustration of our theory. Finally, La Compagnie Transatlantique requested us to organize a Carrier Pigeon post to be utilized for the service of their steamships. To the numerous experiences on land and sea we have added very interesting observations, of which the results have been communicated to us by credible witnesses.

To sum up, we bring a great number of facts, many of which, controlled by the official reports of the commissioners representing the Minister of War, have the character of veritable discoveries.

We have grouped the acts of orientation in two categories: *near orientation*, attributed to the exercise of the five senses, showing observation at work and, in a certain sense, reasoning and intelligence; and *distant orientation*, an act purely mechanical, accomplished by means of a subjective sense to which we give the name of the Sense of Direction.

In each of these two cases the mechanism of orientation obeys distinct laws.

In the study of mathematics we often employ a method which consists in considering as proved a proposition presented as a problem and in drawing a deduction from it.

We will do the same. Let us admit as a hypothetical law that *the instinct of orientation is a faculty that all animals possess in a greater or less degree, of resuming the reverse scent of a road once crossed by them*, and then let us use it to explain *certain facts* not explicable in any other way.

Let us attend in thought a *release* of pigeons. Many hundreds of birds coming from the Pigeon cotes of the same region are set at liberty at the same time. They set out together, divide for traveling in two or three groups, then, as soon as they reach the known horizon, scatter themselves, and each of them flies directly to his own home.

A certain number of carriers do not answer to the call, others come home the following days. The "pigeon-flyer" limits himself to registering the loss of some and verifying the tardy home-comers, without trying to penetrate the reason of the fault of instinct. How

PIGEON CARS OF THE FRENCH ARMY

could we ask of the bird his secret that a sudden rapid flight conceals from us? Instinct is at fault, the bird must wander at random, counting on chance alone to find his way back again.

We cannot share such an opinion for the following reasons: The bird astray through fault of instinct is not for that reason in revolt against the general law of preservation which regulates all his actions. On the contrary, he feels very keenly the call of instinct which incites him to search for his own Pigeon cote.

He sees very clearly the end in view, but the means of reaching it are momentarily at fault. He then displays all the activity of which he is capable, and tries many aërial tracks, one after another.

The 'law of reverse scent' will permit us to follow him on his wayward course, and to re-establish his itinerary. When we surprise the lost Pigeon's secret, we will verify that *chance* does not play any part in the movements of the bird.

In 1896 we attended a *'lacher'* of Pigeons that came from the Pigeon cotes of Mons and Charléroi.

The two flocks of Pigeons having been set at liberty by chance at the same time, from two different points of the freight station, reunited in the air and formed at the time of their departure one flock. The weather was extremely unfavorable, mist, rain and a contrary wind contributing to retard the home-coming of our winged travelers. A first fault of instinct, easy to explain, was noticed on their arrival; two Pigeons from Mons are captured at Charleroi, and three Pigeons from Charleroi are taken at Mons. In short, about forty Pigeons did not return to their homes the same evening they were set at liberty.

The departure from Orleans had taken place with a perfect gathering of the whole number of Pigeons; the birds taking their direction first showed the way to follow to their companions, and some of these followed their guides blindly, to the extent of entering with them their unfamiliar Pigeon cotes.

However, at Orleans, an observer verified, between three o'clock in the afternoon and seven o'clock in the morning, the arrival of about thirty Pigeons, which perched themselves on the roof of the station. Night came and we succeeded in capturing nine: five from Charleroi, and four from Mons. We set them at liberty again. This verification permits us to suppose that the thirty-two Pigeons which came back to Orleans had all lost their way when they were released in the morning. The morning of the next day, from five to seven o'clock, they all disappeared, one after the other, in the direction of the North. About thirty of the belated ones returned the same day to Charleroi and Mons.

These comings and goings explain themselves quite naturally by the 'law of the reverse scent.' Our winged voyagers forming one flock at their departure from Orleans, were not long about dividing themselves into many groups. We have pointed out that to come back they had to struggle against the bad weather. Now, in this regard, the Carrier Pigeons are not all armed with the same ability to fight the elements. The small Pigeon, called the 'Liegeoise,' flies with great velocity during normal weather.

The very stuffy-looking Pigeons called 'Auversoise,' endowed with considerable muscular power, cannot rival the Liegeoise during fine weather, but is very superior to him when it is necessary, for

example, to struggle against a violent wind. It is, then, very natural that, endowed with different degrees of ability, our Pigeons leaving together in perfect unison, should have, little by little, become separated from each other on the route.

A Pigeon from Mons, finding himself in the midst of a band of companions flying toward Charleroi, followed them as far as their destination. Then seeing each one of them disperse, in order to regain his own home, he remained alone, lost on the roofs of an unknown city. Now, Mons is not far from Charleroi, and it would be sufficient for our traveler to raise himself in the air to see, perhaps, his natal roof. He does not do so; having in the course of his preceding journeys contracted the habit of using only the sixth sense for distant orientation, he does not dream for an instant of utilizing his sight. Resuming in an inverse sense the road followed to come to Charleroi, he arrives at Orleans at the point where he had been liberated that very morning. Tired with the long trip accomplished during the day, he rests there one night. The next day he takes his bearings and finds again the 'reverse scent' of the road practiced two days before in the railway train, and reaches Mons. The thirty-two Pigeons which reappeared at Orleans the evening of the release, only to disappear the next day, very likely followed the same rule of conduct.

The example we have just cited is assuredly interesting. We have based our statements on real occurrences, then when facts failed on simple conjecture, to explain the comings and goings of the Pigeons. We have consequently in our deductions, if not certainty, at least a great probability, which, however, does not quite satisfy us. We think, therefore, we ought to present a few cases more conclusive than the first.

A Pigeon belonging to a colombophile of Grand-Couronne alighted in the garden belonging to M. le Général M——, at Evreux. We were to go that same day to Rouen. We carry away the lost Pigeon and set him at liberty in the station of Grand-Couronne near his Pigeon cote. The Pigeon takes his bearings and returns to Evreux, at M. le Général M——. Caught again, he is this time expressed in a postal package to his owner. Allowed to go free in the cote, he no longer thinks of returning to Evreux.

The Pigeon stopping to eat and rest at M. le Général M——'s did not consider for one instant that unknown house as a new home: it represented to him a point of journey followed before and, consequently, must be a point of departure for future investigation. After a few hours of rest he will set out again from there to resume the 'reverse scent' of the aëriel path that led him to Evreux. He only thinks of finding again his lost home.

We take him in a railway car to Grand-Couronne, and we free him at *a few steps from his cote*. But the sense of distant orientation, the sixth sense, is alone in working order, to the exclusion of the first five. The bird takes up again his reverse scent, passes in sight of his dwelling as if hypnotized, *without seeing it*, and reaches Evreux once more at the point through which passed that itinerary which he is trying to re-establish.

His calculation is baffled; brought back to his owner's home and given his freedom, he, this time, is brought to himself. The five senses, awakened by stronger sensations, resume the upper hand and the sixth sense, becoming useless, ceases to work.

There is at Orleans an enclosed Pigeon cote having no external issue for the little prisoners. The Pigeons that are shut up in it, and that come from the military Pigeon cotes at Paris and from the North, live there in semi-obscurity and in absolute ignorance of what passes outside. When, after a month or two of captivity, they are to be set at liberty, every precaution is taken to carry them away for the release many kilometers from their transient cote, to which, besides, they are not attached by any agreeable remembrance. Now, we have stated elsewhere that very often Pigeons know how to find that house without even knowing its outside appearance. They perch themselves on the roof, then, after a short stop, they take their bearings and disappear in order to go back to the cote where they were born.

The *law of reverse scent* allows us to explain the conduct of the Pigeon. He is carried away, set at liberty, let us say, at the station of Aubraës, takes up the *reverse scent* and hovers about the *cote of exclusion*, which represents to him the end of the itinerary by which he has been brought to Orleans. It is then from there that he will set out to take up in an inverse sense the road, the remembrance of which has remained deeply engraved on his memory.

We could multiply examples of the same kind to show that the Pigeon astray always comes back to the point of his release. We may be convinced of this truth by glancing at the roofs of railway stations of Paris, Orleans, Blois, Tours, Poitiers, Bordeaux, etc., where, every Sunday during the fine weather, people set at liberty hundreds, and sometimes thousands, of Pigeons! On Monday we would notice the return of numerous Pigeons lost the day before, that, not having succeeded in their first trial in finding their natal roof, are going to make a second attempt, and sometimes a third, in order to find the right road.

When set at liberty the day before the Pigeon took his flight, he fled swiftly from that point of departure to which, apparently,

no interest attached him. With one powerful sweep of his wings he has crossed four or five hundred kilometers, perhaps more, in the wrong direction. Perceiving his error, he knows how, thanks to a mysterious instinct, to take up again his reverse scent and find the point of departure, of which he has hardly caught a glimpse in the morning. The combined action of the five senses cannot explain such a return. The lost dog acts absolutely in the same manner. When taken away in the railway train to a hunting ground entirely unknown to him, if he happens to go astray, he comes back to the point where he saw his master for the last time, and stations himself there until someone comes to find him, or else, resuming his reverse scent, he reconstitutes in an inverse sense his itinerary through which he has been brought, and finds again his home.

The migrations of birds have been the object of observation too well known for us to dilate upon, and we will limit ourselves to explaining, with the aid of our theory, some evident truths.

The migratory bird is subject, like his species, which invariably inhabits the same region, to the law of cantonment. Only, he has two domains, one summer residence, the other for winter. We know that the same Swallows come every year to occupy the same nest and to live in the same canton. The same fact is true regarding Storks and many other birds.

When the time for departure has sounded, birds of the same kind living in the same region assemble together for the journey. Those which have already made the passage take the head of the flock and follow in an inverse sense the itinerary which brought them to their present quarters. The younger birds, born since the preceding trip, limit themselves to following their elders. And when, a few months later, it will be a question of returning, they will be in their turn capable of finding their way unaided.

The migratory bird born in our climate not having yet made any journey, that for any reason whatever fails to leave with the other birds, renounces emigrating. It is this way wounded Woodcock, not in a condition to undertake a long journey, resign themselves to living in our country until the following spring. The same thing has been remarked concerning Peewits, Curlews, Storks, or Swallows held in captivity at the time of the departure of their comrades. Some of these birds endure the rigors of the climate; others, notably the Swallows, succumb to it.

Thus, then, it is a sort of tradition that migratory birds transmit to each other from generation to generation the indication of their aërial passage. These passages once traced are immutable.

The itinerary of the Quail, which arrive from Africa in Provence,

or of the Woodcock, which find their landing place in Jersey, is well known to the peasants, who capture them by the thousand.

It would be sufficient for the poor birds to baffle their enemies only to change the route of their direction a few kilometers. But they cannot do so; they are fatally bound to the aërial way followed in the preceding journey and cannot leave it without losing themselves.

It is just so with other animals. Fish are cantoned. Certain of them have, like the migratory birds, two or three domains that they occupy successively. To go from one to another they emigrate in a mass, and follow routes of which the traces are subject to the rules we have set forth for the migration of birds. The relentless war that fishermen with a knowledge of their habits make upon them has never caused them to change their itinerary.

Our theory of orientation seems, therefore, applicable to animals of all kinds. It permits us to arrange and explain in a very satisfactory manner a number of facts observed and known for a long time.

(*To be concluded.*)

CATBIRD ON NEST

Photographed from nature by A. J. Pennock, at Lansdowne, Pa., July, 1899

A Study of a Lincoln's Sparrow

BY WILLIAM BREWSTER

AT Concord, Massachusetts, in the spring of 1899, I had a rare opportunity of studying the habits and notes of a Lincoln's Sparrow. The bird appeared May 15th in a thicket of bushes within a few yards of the log cabin where I was living, and remained there until the 22nd, spending apparently the whole of this period within a space a few yards square. On the edge of the thicket, in a bed of ferns about fifteen feet from the cabin door, I scattered daily a quantity of millet seed. This convenient supply of a food irresistible to most of the Sparrow tribe had, no doubt, much to do with the prolonged visit of the Lincoln's Finch, although the weather, during his entire stay, was too cool and threatening to be favorable for migration.

He was shy at first and at all times alert and suspicious, but he showed a nice and, on the whole, wise discrimination in his judgment of different sights and sounds. He soon learned to disregard noises made within the cabin, as well as the rumble and roar of trains passing along the railroad across the river; but if our door was suddenly thrown open or if a footstep was heard approaching along the path he at once deserted the millet and retreated into the thicket, dodging from bush to bush and keeping behind anything that would serve as a screen until all became quiet again, when he would reappear at the fern bed and, after a short reconnoissance, resume his interrupted meal. However busily engaged he might be, no sight nor sound escaped him. If a Chipmunk rustled the dry leaves on the neighboring hillside he would erect his body and crane up his neck, turning his head slowly from side to side to watch and listen. There were many Chimney Swifts flying about, and when one passed low overhead, with a sound of rushing wings, the Sparrow would cower close to the ground like a frightened Partridge or Woodcock and remain motionless for a minute or more. But if nothing occurred to excite his apprehensions he would continue to feed busily and unconcernedly until his appetite was satisfied. Truly an alert, keen-witted little traveler, quite alive to all the possible as well as obvious dangers that surrounded him, but too experienced and cool-headed to give way to those senseless panics which so often seize upon many of our smaller birds.

Some of the seed had sifted down under the leaves, and for this our bird scratched diligently like a Fox Sparrow, making first a forward hop of about two inches, then a vigorous backward jump

and kick which scattered behind him all the leaves on which his feet had for an instant rested. In this way he would quickly clear a considerable space, to which he would then devote his attention until he had picked up all the uncovered seeds and rolled them, one by one, between his slightly opened mandibles to remove the husks, after the manner of most seed-eating birds. He was invariably silent when feeding, but within the recesses of his favorite thicket he sang more or less freely at all hours, oftenest in the early morning or when the sun had just emerged from behind a cloud, usually from some perch a yard or less above the ground,

LINCOLN'S SPARROW

About ½ natural size. From a mounted specimen in the American Museum of Natural History

but not infrequently on the ground itself as he rambled from place to place, hopping slowly over the dry leaves. His voice was divinely rich and sweet at times, but invariably so low as to be inaudible at a greater distance than forty or fifty yards. It is impossible to treat briefly and at the same time accurately of his song, for it included several themes, some of which differed comparatively slightly from one another, while others were widely dissimilar. After spending much time studying and comparing them, I noted and classified them as follows:

1. A simple, level, woodeny trill repeated at short, regular intervals, usually indistinguishable from the summer song of the Junco but sometimes possessing a resonant, lyrical quality approaching that of the Yellow-rumped Warbler's song.

2. Trills similar to those just described but connected by unbroken series of short, soft, liquid notes, among which the *tsup* call common to both the Junco and Lincoln's Sparrow were frequently interpolated, the whole forming a protracted and very musical medley almost exactly like that given by the Junco in early spring. This song should perhaps be regarded as a mere variation of No. 1, but as the bird never changed from one to the other I have kept them apart.

3. A rapid warble, at times flowing smoothly and evenly and exceedingly like the song of the Purple Finch, at others brighter and more glancing, the notes rolling over one another, as it were, and suggesting those of the Ruby-crowned Kinglet; again with a rich throaty quality and in form, as well as tone closely like the song of the House Wren; still again guttural and somewhat broken or stuttering, like that of the Long-billed Marsh Wren. Although the first and last of these songs were very unlike, I have put them all under one head, because the bird often used them all during a single singing period and frequently changed from one to another by insensible gradations.

4. Song in slow, measured bars separated by brief intervals, the cadences alternately swelling and dying softly, some of the notes trilled or shaken, the whole resembling in general form as well as in manner of delivery the songs of Bachman's Finch and the Hermit Thrush, and possessing not a little of the same spiritual quality.

Some of these songs were fixed and uniform at all times; others varied within the limits I have just indicated; all resembled and two or three exactly reproduced the songs of other species of birds. Indeed, not one can safely be regarded as original either in form or tone. Those classified under different numbers were never interchanged save after protracted periods of silence, the particular theme selected on each occasion being repeated with little or no variation until the bird ceased singing, while it was sometimes made to serve for a whole forenoon. I can think of no other bird which sings in this way, borrowing his songs from half a dozen other species, never intermingling them nor combining them with notes of his own, but selecting one for one hour or occasion, another for another.

With such a repertoire, even though it be borrowed or stolen, Lincoln's Sparrow might easily rank as the first among North American singing birds were it not that his voice has so little power that its remarkable beauty and flexibility cannot be appreciated unless one is very near the singer. It is quite possible, too, that

the particular bird about which I have been writing was an exceptionally gifted performer, although at least two of the songs which I have attempted to describe have been heard by other observers.

FLICKER AT NEST-HOLE

The same site had been used for two previous seasons, in one of which the opening was artificially enlarged by "some boy"

Photographed from nature by A. L. Princehorn, at Glen Island, N. Y., June 16, 1899

The Birds that Pass in the Night

BY HARRY S. WARREN

UPON the request of Mr. H. A. Winkenwerder, of the University of Wisconsin, I made arrangements to take observations with the telescope at Detroit upon nocturnal bird migration, using the moon for a field of vision, during the full moon in May. The moon would be at full at eight A. M. on the 14th, Monday, but, anticipating cloudy weather, we made our observations on Sunday evening, the 13th, which was clear and warm, with a very light southwest wind. As it was rather late in the migrating season, we expected poor results, but a glance at the tabulated figures below will show that we were pleasantly disappointed.

There were four principal facts we wished to establish by these observations: the number of birds, the direction of flight, their speed, and relative size. In order to obtain this data we numbered the four cardinal points on the field of vision, and for every bird that passed we wrote down, on blanks prepared for the purpose, the point or fraction of a point at which he entered and that at which he left the field, the relative speed at which he passed, and the comparative size of the bird, as well as any further data observed for each individual. The observations covered the time from 8.15 P. M., which was the time the moon came clearly into vision, to 12 midnight, and this time we divided into fifteen-minute periods so as to ascertain the number of birds passing at any period of the evening, as shown below. To make the work easier we changed watches every fifteen minutes, one person using the telescope and the other writing down the data.

The telescope used was a 6-inch refracting instrument, equatorially mounted, with an 8-foot focus; and the eye-piece, a forty-power Clark lens. The number of birds passing during each period, their directions of flight, their speed and comparative size are shown in the following tables:

DETROIT, MICHIGAN, May 13, 1900.

Temperature: { Max., 70° at 8 P. M.
Min., 66° at 12 Midnight.

Atmosphere, fair; wind, light, southwest.

Number of birds seen from	8.15 to 8.30	8	
" " " " "	8.30 to 8.45	7	
" " " " "	8.45 to 9.00	10	
" " " " "	9.00 to 9.15	8	First hour 33

Number of birds seen from 9.15 to 9.30	9	
" " " " " 9.30 to 9.45	10	
" " " " " 9.45 to 10.00	14	
" " " " " 10.00 to 10.15	8	Second hour 41
" " " " " 10.15 to 10.30	10	
" " " " " 10.30 to 10.45	6	
" " " " " 10.45 to 11.00	4	
" " " " " 11.00 to 11.15	7	Third hour 27
" " " " " 11.15 to 11.30	4	
" " " " " 11.30 to 11.45	1	
" " " " " 11.45 to 12.00	5	Fourth period 10
Total number seen from 8.15 to 12.00		111

DIRECTIONS OF FLIGHT

Number of birds traveling northeast	74
" " " " north-northeast	13
" " " " east-northeast	11
" " " " north-northwest	5
" " " " north	4
" " " " northwest	3
" " " " southeast	1

SPEED

Number of birds traveling very rapidly	75
" " " " moderately	22
" " " " slowly	12
" " " " very slowly	2

RELATIVE SIZES OF BIRDS

Small (Goldfinch)	66
Medium (Robin)	27
Large (Crow)	15
Very large	3

COURSES OF FLIGHT

One hundred and eight birds kept their direct courses while passing over the field of vision.

One bird came in moving southeast and curved back to northeast, changing its course about 45°.

Two birds flew in a curve; one changing its course from northeast to east, and one from northeast to north.

IDENTIFICATIONS, ETC.

No. 12 (original list) had the flight of a Hawk or Owl. No. 28 had the wings spread like a Hawk soaring. No. 31 wing motions were plainly seen, but no identification could be made on account of uncertain distance. No. 34 had wavy motion of flight like a Goldfinch. No. 46 passed slowly, the wings beat rapidly and the neck was seen stretched

out like a Duck, Loon, or Grebe. The slow passage was evidently caused by distance. No. 61 had flight like a Goldfinch. No. 72, wing-motions were plainly seen. No. 94 passed very slowly; this was evidently a large bird at long range, as it occupied three seconds in passing over the field and the wing-motions were plainly seen.

We probably missed about one-tenth of the birds passing over the field while changing watches and changing eyes at the telescope, for it is impossible for the eye to focus steadily upon the bright surface of the moon for more than about five minutes, without exhausting the receptive power of the retina, so that a change of eyes is imperative. Being novices at the work, we probably missed more birds at first than after we had had the experience of a couple of watches; still it will be noticed that more birds were recorded for the first two hours than later in the night, which is proof that more birds were moving early in the evening. The number dropped off perceptibly at about 10.30.

The Cartwright observatory, where these observations were made, is located back about three-fifths of a mile from the Detroit river, which at this point is about a mile in width, and the telescope was pointed out over the river at an angle of about 30°. The fact that we were looking out directly over the river undoubtedly explains the general easterly flight of the birds noted. We would naturally expect a more direct northerly course of these spring migrants, but the birds were evidently following up the broad moon-lit course of the Detroit, which here runs from east-northeast to west-southwest, and we estimated that these birds were somewhat more than half a mile above the river.

There are so many unknown quantities in making estimates from these observations, that it is impossible to arrive at any positive conclusions except as to the number of birds passing over the field of vision and their direction of flight. For instance, a bird that we noted as appearing to be in rapid flight might either be actually in rapid flight at long range or might be in comparatively slow flight at short range. In either instance he would pass the field of vision quickly. Here the unknown quantity is distance, which, given, we could readily estimate actual speed. Then a bird flying at right angles to the direction of sight would appear to be moving faster than one moving obliquely toward or from the point of observation. A bird appearing large might be either a large bird at long range or a small bird at short range. Again, if a bird flying east should move upward or downward but a few feet while crossing the field of vision it would register the same result in the telescope as though he were moving northerly or southerly,—that is, of course, when the moon is low in its orbit, as it is in the spring elliptic. There

are, however, rare instances where the conditions are such that identification of a bird as to its order, or even more detailed identifications, are possible, and it is this *chance* which buoys up the enthusiasm while keeping your patient vigil.

When the small cone of atmosphere between the eye and the moon is compared with the entire dome over any point of observation, the mind may grasp the extent of this movement of the birds that pass in a night in any longitude, and when this is again multiplied by the number of nights in the migrating season, and again by the width of our land from the cliffs of Newfoundland to the Golden Gate of the Pacific, some conception may possibly be had as to the vast importance in the economy of nature of this movement of the feathered army as it sweeps northward on its summer campaign.

NIGHTHAWK AND YOUNG

Photographed from nature by Robert R. Peebles, at Stamford, Conn., June 3, 1900

For Young Observers

Two Notes by a Young Observer

EDMUND B. DIBBLE, St. Paul, Minn. (aged 13)

A Word about Bluejays.—One morning when out on the lawn I saw a Bluejay fly quietly into a tree, look around, then hop up near a Robin's nest. He looked around again, then hopped up to the rim and leaned over as if to take out an egg, but a Robin which happened to fly up to the nest just then saw him and, redoubling its speed, flew against the Bluejay's neck and (whether to try to hold itself up or pull the Bluejay down I do not know) held on. Both tumbled to the ground, and for a moment the Bluejay 'didn't know what struck him.' Then the other Robin came and began pecking at the Jay's eyes, whereupon Robin No. 1 let go and began pecking too. The Jay seemed to think things were getting too warm for him and started for the woods near by, where I could hear the cries of both him and the Robins who had followed him.

Last year a Bluejay robbed a Sparrow's nest just outside my window. I awoke one morning to hear a great outcry among the English Sparrows and, going to the window, saw a Jay just gulping down something. Then he leaned over and lifted a young bird up, but I tapped on the window and he dropped the bird and flew away. When I looked in the nest one bird was missing.

The Feeding of Young Horned Larks.—One afternoon (May 11), desiring to know how many times the Horned Larks brought food to their young, I posted myself where I could watch them. Although I was too far away to distinguish what they gave the young, I could see the little fellows open their yellow mouths to receive the food.

I started my watching at just four o'clock, and below are the times at which the birds brought the food for about one hour: 4.01, 4.01½, 4.06, 4.10, 4.11½, 4.14, 4.20, 4.24, 4.29½, 4.31, 4.37½, 4.39½, 4.41, 4.46, 4.50, 4.52, 4.55½, 4.58, 5.00, 5.02. It will be seen that this made twenty times in about one hour or, on an average, every three minutes.

At the first glance this may seem extraordinary, but as there were four young ones, each would be fed only once every twelve minutes. But think of the number of insects destroyed in a season. The parents work from twelve to sixteen hours a day, and raise three or four broods of four or five birds each in a season. Just think how soon the insects would become unbearable if it were not for our feathered friends! Man alone could do almost nothing against them.

Notes from Field and Study

Early Breeding of the Pine Siskin

Small flocks of Pine Siskins have been frequent visitors at my home for several weeks. On April 14, 1900, I observed them as before, and while enjoying their presence I heard an unusual sound which instantly reminded me of young birds. I took my glass to find, if possible, the cause of the outcry, when, only a few feet from where I was standing, I saw a parent Siskin feeding its young and near by sat another waiting to be fed. There may have been still more young in the evergreen trees close, by but I was only sure of two. They were quite small and looked like little round balls of feathers.

On the morning of April 17 Mr. Horton observed them in the same location while being fed by the parent bird.—Mrs. Wm. C. Horton, President of Brattleboro Bird Club, *Brattleboro, Vermont.*

An Oriole Tragedy

Some time ago two boys brought a nest to my office which they had found in their wanderings afield. It was the finely woven pendent of the Baltimore Oriole, made entirely of twine, a material which proved fatal to the little architect, for there she was hanging pathetically by the neck from the lintel of her own doorway, her nestlings starved within. As far as I know this accident is unique in that it occurred after the period of incubation. Let us hope that the struggle was soon ended, that the unfortunate mother was not long compelled to listen in impotent distress to the appealing cries of her starving young until kind death at last brought relief. —J. Holbrook Shaw, M.D., *Plymouth, Mass.*

AN ORIOLE TRAGEDY

The Newport Robin

Many summer visitors to Newport, Rhode Island, are acquainted with the establishment of Mr. Charles E. Ash, of No. 3 Market Square. Mr. Ash and his son are devoted to pets. Mike, an old Barbary Ape, was the recipient of much attention from visitors, and doubtless promoted a better understanding of human character among the thoughtful ones. But the monkeys, dogs, cats and squirrels were not always the favorites. A common Crow that said "papa" and "hello" was in high favor with the children; and a wonderful Robin that whistled a march to the step of the police squad marching to and from the neighboring police station was certainly one of the best known and most popular individuals of the feathered tribe in America.

This Robin closed a long and happy career before my arrival in Newport. He lived on a busy thoroughfare, where a tiny fountain played into a marble trough in which horses slaked their thirst in front of a police station and the Robin's cage; but he never saw a grassy lawn or a green tree, having been taken from a nest built in a post on Bellevue avenue when a very wee bird, by Mr. Charles E. Ash, Jr., who told me that the male parent of this Robin was the finest singer of any he had ever heard.

Mr. Ash's pets have received considerable attention from naturalists, and biographies of some of them have frequently appeared in the local press; but none other has been so much talked of and written about as the Newport Robin—a thoroughbred patrician bird from Bellevue avenue. This male Robin was taken from the nest when scarcely feathered and placed in a cage which hung in the office of the market, and there he learned, from the musically inclined customers and from his master, such airs as 'Yankee Doodle,' 'Sweet By-and-By,' 'Marching Through Georgia,' 'Over The Garden Wall,' 'Johnnie, Get Your Gun,' 'Here She Goes—There She Goes,' and many others, one of his acquirements being the campaign air: 'What's the matter with Harrison; He's all Right,' and all rendered in perfect tune and with a sweetness surpassing the finest flute or piccolo.

At first Mr. Ash thought of his little prisoner simply as a companion during the extreme early hours at which the market had to be opened, and was surprised one day at hearing him whistling one of his own favorite airs. But after that he took a little more pains and spent his leisure moments in teaching the Robin different tunes, and, finding him an apt scholar, encouraged customers to whistle in his presence until he became the wonder of all who have ever heard him whistle He never gave the chirping whistle peculiar to the Robin, but continually repeated notes gathered from his admiring friends. He developed an aptness for mimicry quite equal to the best-bred Mockingbird, and a talent for sweet music which quite surpassed that of the latter.

The home of this feathered wonder was a large, handsome wire cage, presented him by his honor, Mayor Powel. The Robin preferred this cage to freedom, and seemed to love the society of man and to be perfectly contented. In In fact, he made his escape once and returned of his own free will after an absence of about an hour. Another time he left his cage and wandered from tho market and was picked up, completely exhausted, by a Judge of the probate court, who took him back. Once he paid a visit to a favorite officer at the police station. But *embonpoint* developed during the latter years of the decade of his life, and rendered him so liable to accidents abroad that he was never allowed to leave the narrow confines of his home He received about the same treatment and food as a Mockingbird, but rejected all opportunities to bathe oftener than every other day and then insisted upon having his tub of fresh water.

This bird was the pride of his owner, who refused tempting pecuniary inducements to part with him; but all visitors to the Robin's cage were cordially welcomed by Mr. Ash, who delighted in having his pet seen and heard, that all might comprehend his really wonderful talent.—E. A. Mearns, *Ft. Adams, Newport, R. I.*

A Yonkers Robin

Two years ago this summer, at Yonkers, N. Y., the ice-man carried into a kitchen an unfledged Robin picked up in the street. Kind-hearted Bridget fed and cared for the foundling, after trying in vain to restore it to the nest. It was placed in a large cage until old enough to enjoy the freedom of the house. Once a female Robin flew to the window-sill with a worm; and whenever the cage was put out-of-doors Robins visited it and talked to the little one One day five of its relatives lighted on the cage, as if meditating a *coup d' etat.*

The bird would have been released in due time, but for a catastrophe. One luckless night, the cage having been left out, a 'self-supporting cat' clawed poor Robin, wounding him desperately, and permanently injuring one wing. His life was saved, but the wound never healed, and whenever the bird is excited, drops of blood exude.

Robin calls for his oatmeal each morning, and will not be quiet until fed from the spoon of the master of the house. He

is fond of all of the family, even the dog, a Gordon setter, on whose head he likes to perch; but he loves best his 'Bebe,' as he calls Bridget, and when she goes out for a day he keeps a mournful silence until overjoyed at her return. He has all the Robin vocabulary and song, besides various whistles and tunes taught him by Bridget. He modulates his calls in close imitation of his teacher, and when with her is as happy as any outdoor bird, perching on her shoulder and responding to her in the most winsome manner.

As it is a common occurrence for adventurous young birds to fall from the nest, perhaps some readers of BIRD-LORE will copy Bridget, and add their experience to the "Ethics of Caging Birds."—ELLA GILBERT IVES, *Dorchester, Massachusetts.*

An Albino Robin

When the Robins returned to St. Albans, Vermont, in the spring of 1897, a pure white Robin with a red breast came with them. This 'woman in white' made its home in an orchard, where it doubtless nested, as it was seen carrying building material there. Though the nest could not be found, the bird stayed upon the farm through the summer, becoming very tame as the months passed, and coming to the door for crumbs daily.

The following spring the same bird was seen upon the same farm, where it built a nest in a maple, in the dooryard. This little house, or more literally this little housekeeper, attracted so much attention that she deserted the nest, after three eggs were laid, and built another upon the opposite side of the same tree, in which four young Robins were duly hatched. A high wind soon brought both nest and young to the ground. A third nest was then made in the same maple, in which five young Robins found a secure home. Both nests and young birds were in every way normal; not a hint in a single feather betrayed their unique motherhood.

The bird did not return in the spring of 1899. In April of this year, however, it came to the same neighborhood, and has built a nest in an apple tree upon a lonely hillside, a third of a mile from its former nesting sites. It is often described as "as large as a Dove," though, after much careful observation, I am certain that its color, only, makes its size deceitful. Its red breast, contrasted with the pure white, also seems much redder than in the ordinary Robin. Altogether it is as handsome a bird as can well be imagined, its pink eyes being noticeable as it sits upon the nest, and its color making it easily seen as it crosses the meadows or hops about upon the opposite hillside in search of grasshoppers.—NELLY HART WOODWORTH, *St. Albans, Vt.*

A Successful Bird Club

[The following account of the formation of a Bird Club at Newburgh, N. Y., has been prepared at our request, as an illustration of the interest in birds which may be aroused by an enthusiastic leader. There is no reason why ornithologists throughout the country could not achieve the same success which has attended Mr. Robinson's efforts to share his pleasures in bird-study.—ED.]

Wherever there have been organizations studying the course laid down by the Chautauqua during the past winter, the subject of Birds has been presented through that delightful little book 'Birds through an Opera Glass.' It is doubtful if there was any gathering of people who took up the study with more enthusiasm and interest than the Chautauqua Circle, in the city of Newburgh, N. Y. The work was under the direction of Francis B. Robinson, of that city, who has been a close student of Nature for many years, and he gave the preliminary talk, tracing the development of bird-life, and noting the birds that are now extinct and those that are becoming so. This talk, with a lecture on 'Expansion,' took up a long evening, and it was found necessary to devote the entire evening to Birds alone, and Friday evenings of each week during March, April and May were used for this purpose. The study was pursued systematically by over two hundred people, among them lawyers, doctors, ministers and teachers, and each active member was assigned a bird to report on. This

made it necessary for the student to become familiar with the bird he or she had been assigned, and a personal knowledge of the subject was acquired. The Free Library was besieged, and all books on birds were brought out of their seclusion and put once more into circulation Many new works were sought at the book-stores, and bird-literature is still in demand. The second evening was devoted to Crows, Robins, Bluebirds, Song Sparrows, Jays and Blackbirds—all birds that are to be found at that season of the year. Then came the Sparrow family, with the Junco, Finches, Cross-bills, Nuthatches and Woodpeckers, that are abundant in early April. Then the Flycatchers and Thrushes, and finally an evening was devoted to the Warblers, some twenty fine specimens being shown in skins. Within the next week, members had identified the Mourning, Chestnut-sided, Black-throated Blue, Black and White, and other spring migrants and resident birds that were found in the shaded streets and parks. Excursions were made into the highlands and country, and incidentally a love of flowers and nature was imbued.

The beautiful pictures furnished the academy through the regents by the Museum of Natural History were shown on the first of June, and as each bird was pictured, its haunts and habits were commented upon. On the 9th a party of over sixty people took the delightful sail down the Hudson, and journeyed to the Museum of Natural History, where Mr. Chapman directed them to the case of birds which he has arranged purposely for bird-students. A beautiful case of water-birds, land-birds and two 'seasonal' cases, all of the birds found within fifty miles of New York City, were of special interest to the class, and much time was spent in this room. Since the close of study it is a subject of remark that more birds have been named and noted in the past few weeks than ever before, and it is no uncommon sight to see gray-haired students in the yards and country roads, opera glass in hand, watching for some feathered mystery to appear. Red-eyed, Warbling and Yellow-throated Vireos are especially attractive, and their strong, clear notes may be heard all day long, and many of their cup-shaped nests have been discovered. Thus a new interest in outdoor life has been unfolded and a new pleasure found.

Cowbird in a Dove's Nest

On May 25, 1899, at Rock Hill, Pa , I found fifteen or more Doves' nests in one orchard While looking for a suitable place in which to put my camera, I noticed a Cowbird flutter off a large Grackle's nest, and on examination found the nest to contain only a Cowbird's egg. Three days later I discovered that a Dove had deposited two eggs in this nest. Circumstances now prevented me from visiting the nest for three weeks, when I found a Cowbird ready to fly

YOUNG COWBIRD AND TWO DOVE'S EGGS IN OLD GRACKLE'S NEST

Although I watched the nest for some time to see how the Doves would feed the young Cowbird, they did not return, and I regret to say I did not succeed in learning the outcome of this interesting case.—CHAS. D. KELLOGG, *Philadelphia.*

YOUNG WARBLING VIREOS AND NEST
Photographed from nature by R. W. Hegner, Decorah, Ia.

RED-EYED VIREO ON NEST
Photographed from nature by F. M. Chapman, at Englewood, N. J., June 6, 1900

TWO VIREOS' NESTS

Book News and Reviews

BIRD HOMES. THE NESTS, EGGS AND BREEDING HABITS OF THE LAND BIRDS BREEDING IN THE EASTERN UNITED STATES, WITH HINTS ON THE REARING AND PHOTOGRAPHING OF YOUNG BIRDS. By A. RADCLYFFE DUGMORE. Illustrated with photographs from nature by the author. Doubleday & McClure Co. 8vo. Pages xvi+183, 50 half-tone ills., and 16 colorotypes. $2 net.

This attractive volume is to be compared only with Davie's 'Nests and Eggs of North American Birds', from which it differs in arrangement, the descriptions being grouped according to nesting-site, and not systematically as in Davie, while Mr. Dugmore gives a short description of the plumages of the species treated, but generally fails to mention the authority for statements not based on his own experience, and, in this respect, the book is less useful to the working ornithologist than Davie's. In its illustrations, however, it is immeasurably superior to Davie's book; in fact, we can conceive of no better demonstration of the superiority of the camera over the pen or brush in depicting birds' nests than that furnished by a comparison of Mr. Dugmore's beautiful plates with those contained in Davie's 'Nests and Eggs.'

Mr. Dugmore will be known to ornithologists chiefly by his illustrations in Scott's 'Bird Studies.' In the present work, however, he shows a far clearer perception of the true value of the camera to the ornithologist, and his photographs as here reproduced in black and white are so eminently satisfactory that we cannot but regret the attempt to produce any of them in color.

Mr. Dugmore has devoted much time to rearing young birds, and his notes on the habits of a number of our common birds in confinement contain no little amount of original and valuable information. His position in regard to egg-collecting is in accord with that of all true ornithologists, and we are assured that his work will exert a widespread influence in creating and fostering an interest in bird-study and a proper regard for the rights of birds.—F. M. C.

NATURE'S CALENDAR. By ERNEST INGERSOLL. With 12 illustrations from original photographs by CLARENCE LOWN. New York and London, Harper & Brothers 12mo. Pages xii + 270. 12 full-page half-tones.

'What to see in nature and when to see it,' is the motto of this book, and its author's skill with the pen and knowledge of the literature of natural history have served a good purpose in presenting in attractive and useful form a large amount of information concerning the seasons and their plant and animal life.

The matter is arranged under months, a general description of the characteristic phenomena of each month being followed by calendars wherein are summarized the statements in relation to Mammals, Birds, Fishes, Batrachians and Reptiles, and Insects. "The dates here given," it is said, "refer to an ordinary season about New York City," and wide margins are left (the text occupying less than half of each page) for the entry of the reader's observations.

Miss Helen Ingersoll, the author's daughter, is accredited with assistance "in respect to local botany." Prof. Clarence M. Weed is responsible for the parts relating to insects, and for information in regard to mammals, reptiles, batrachians and fishes the author quotes from Merriam, Burroughs, W. E. Cram, De Kay, C. C. Abbott, John Bell (who is spoken of as "Thomas Bell"), Mearns, Kirtland, Allen, Hay, Goode, and others; but for the part relating to birds he gives no authority. This is the more to be regretted, for it is this portion of the book in which we are here especially interested and in which we find a number of records at variance with previously published data.

Thus the White-crowned Sparrow is said to occur in March, the Blackburnian Warbler is spoken of as among the earliest of its family, and is said to arrive the second week in April, a date which is also given for the first appearance of the Magnolia Warbler, but the Yellow Palm Warbler is not to be looked for until the fourth week of the month. The coming of the Yellow-throated Vireo is set down for the first week in April, and the Yellow-winged Sparrow, which is said to be "rarely seen" far from the seashore, is stated to reach us the second work in April. The Chebec is alluded to as possessing an exquisite voice, and is said to nest in bushes.

This lack of exactness, of which other evidences could be given, detracts from the value of the book for those who desire to compare their own records with those here given; but the general reader will find that the rise and fall of the bird-life of the year are described in an instructive and, in the main, accurate manner; and it is to the general reader, rather than the enthusiastic specialist, that the book is addressed.—F. M. C.

Bulletin No. 12 U. S Department of Agriculture, Division of Biological Survey. LEGISLATION FOR THE PROTECTION OF BIRDS OTHER THAN GAME BIRDS. By T. S. PALMER, Assistant Chief of the Biological Survey. Prepared under the direction of Dr. C. HART MERRIAM, Chief of Biological Survey, Washington, Government Printing Office. 8vo. Pages 94. Ills.

Only a person who has had occasion to ascertain the non-game bird law of a given state can fully appreciate the value of the service which Dr. Palmer has rendered to every one interested in bird-protective legislation by presenting, in one volume, the laws (or absence of them) of every state and territory in the Union and of the Canadian provinces. This 'Bulletin,' however, is not only of value as a reference book or 'digest,' but it reveals the surprisingly inadequate laws which exist in most of our states for the protection of non-game birds, and thus furnishes a definite point of departure in the attempt to secure for these birds as effective legal protection as is generally accorded game birds.

But Dr. Palmer's work is not merely a compilation, over one-half of it being devoted to a 'General Discussion of Protective Legislation,' where are authoritatively treated such moot subjects as the definition of a game bird, the value of birds of prey, etc., with other matter relating to the needs of bird protection, destruction of birds for millinery purposes, issuance of permits for collecting, licenses, etc. Here also are presented histories of the Hoar, Teller and Lacey bird-protective bills and a slightly amended and annotated reprint of the model bird law proposed by the American Ornithologists' Union.

We cannot be too grateful to Dr. Palmer for the admirable manner in which, in this Bulletin No. 12, he has evolved order out of chaos in matters relating to legislation for non-game birds.—F. M. C.

WARBLERS' SONGS. By LYNDS JONES. Wilson Bulletin No. 30. Oberlin, Ohio January, 1900. Pages 56.

The philosophic student of birds' language, will find in this paper much to interest him, while bird-lovers, to whom the Warblers are a source of despair, may receive from it very effective aid in making identifications.

It was a very happy idea of Mr. Jones to thus bring together between two covers, what has been written in description of Warblers' Songs, and the value of his paper has been greatly increased by the addition of his own observations and those of the members of the Wilson Ornithological Chapter, who have assisted him.

An 'Introduction' gives the reasons for presenting the paper, and the manner in which the material contained in it was secured, and is followed by an extended bibliography and discussion of the types of Warblers' songs, song-periods, kinds of song, variability, etc. He writes feelingly of the difficulties encountered in attempting to describe the songs of most Warblers, and then treats serially each of the fifty-seven species and sixteen subspecies of this family which have been found in North America.—F. M. C.

CATALOGUE OF CANADIAN BIRDS. PART I. WATER BIRDS, GALLINACEOUS BIRDS, AND PIGEONS. By JOHN MACOUN, Naturalist to the Geological Survey of Canada, Ottawa. 1900. Pages viii + 218.

The author of this important work states that he "he has endeavored to bring together facts on the range and nesting habits of all the birds known to reside in, migrate to, or visit, the northern part of the continent. In addition to the Dominion of Canada, he has therefore included Newfoundland, Greenland and Alaska." To original information gathered during the past twenty years in explorations which have taken him from the Atlantic to the Pacific, and that secured by Mr. W. Spreadborough, who, since 1889, has been at work under his supervision, he adds data from MS. notes of various duly accredited observers, and those which have already been recorded by the more authoritative writers on the birds of the great region embraced by his limits. In this compilation two important papers have apparently been overlooked, viz.; Blakiston's 'On the Birds of the Interior of British America' (Ibis, 1863, p. 39 *et seq*), a fully annotated list of 250 species, and Merriam's 'List of Birds Ascertained to Occur Within Ten Miles of Point des Monts, Province of Quebec' (Bull., N. O. C. VII, 1882, p. 233 *et seq*), a list of 180 species.

The annotations under each species consist of remarks on its general range and notes on the breeding of species known to nest, with, in every instance, the authority for all statements not based on personal observation, and a list of museum specimens with data. The book is, therefore, an invaluable reference manual for those in search of information in regard to the birds of northern North America, and we note with pleasure that the second and concluding part is promised for an early date.— F. M. C.

A MONOGRAPH OF THE FLICKER. By FRANK L. BURNS. Wilson Bulletin No. 31. Oberlin, Ohio, April, 1900. Pages 82.

To know that you have in your hand all the more important facts concerning the life-history of a common bird affords one a sense of satisfaction which can be appreciated only by those who, in search of information concerning the habits of some familiar species, have been obliged to wade through a library. For five years Mr. Burns has devoted his available time to securing the information presented in this monograph. Correspondence with other ornithologists, whose assistance is fully acknowledged, search in the literature of ornithology, and personal observation in the field, have resulted in making what, as far as we know, is the most complete existing biography of any North American bird. Beginning with its scientific and vernacular names (of which the astonishing number of 124 are listed) the author treats his subject under the headings: 'Geographical Range,' 'Winter Range,' 'Breeding Range,' 'Migration,' 'Flight,' 'Roosting,' 'Drum Calls,' 'Voice,' 'Mating,' 'Nidification,' 'Eggs,' 'Incubation,' 'Young,' 'Molt and Renewal,' 'Food,' 'Enemies,' 'Measurements,' 'Plumage,' 'Hybridism,' 'Atavism,' 'Conclusion.'

It is not possible for us to go into details, but we cannot conclude this brief notice without congratulating Mr. Burns on the excellence of his work, and thoroughly commending his method of presentation. When our bookshelves contain a row of biographies on our birds, similar to this one, we may consider ourselves well equipped to further elucidate the problems which such a close study is sure to present, and we would strongly urge every ambitious ornithologist who is undecided into what channel to turn his efforts, to concentrate them on a single species, and in due time the science he loves may be as deeply indebted to him as it is to Mr. Burns.— F. M. C.

THE AVIFAUNA OF LOUISIANA. By GEO. E. BEYER. Reprint from the Proc. of the Louisiana Society of Naturalists, 1897–1899. 8vo, pp. 1–45.

This is an exceedingly welcome contribution to the faunal literature of a state concerning the bird-life of which we possess very little published information. Professor Beyer has been obliged to rely

largely on his own researches, and his list of 323 species and subspecies is evidence of his diligence afield. When we note, however, that such species as the Nashville, Canadian, and Wilson's Warblers and Common Tern have not as yet been reported from Louisiana, it is clear that the state still offers a profitable field for the faunal ornithologist. Professor Beyer's work is well done, but we would suggest that more critical examination of his material would perhaps cause him to change his identification of several species; among them "*Tympanuchus americanus*," which, as he records it only from the south-western part of the state, is probably *T. a. attwateri;* "*Ammodramus caudacutus*, which is doubtless *A. nelsoni;* and "*Ammodramus maritimus*," which presumably is *A. m. fisheri*. These, however, are minor defects, and the paper as a whole bears evidence of care in its preparation, which makes it a trustworthy source of reference.—F. M. C.

Preliminary List of Birds, Resident, Visitant, Migrant, or Accidental, Observed in the Vicinity of Manchester, N. H. Compiled by Frederick W. Batchelder, assisted by Edward H. Fogg. Proc. Manchester Institute of Arts and Sciences. Vol. I, 1899, pp. 123–138.

This is a briefly annotated list of 132 species, and is designed to form a working basis for further observation. It is an outgrowth of the activity of the ornithological section of the Manchester Institute and the 'Reports of the Meetings' of this section which precede the 'List' (pages 117–121) should prove both suggestive and stimulative reading for the members of other societies devoted to the study of birds.—F. M. C.

Book News

Circular No. 29, of the Biological Survey of the U. S. Department of Agriculture, signed by James Wilson, Secretary of Agriculture, places the administration of the Lacey Bill, so far as it concerns the importation and preservation of animals, in charge of the Biological Survey, under the immediate direction of the Assistant Chief of the Survey,—an appointment which all advocates of the Lacey Bill will regard with unbounded satisfaction. This circular also presents the Lacey Bill in full and explains the manner in which it is proposed to make its provisions effective.

Circular No. 28, of the Biological Survey, by Dr. T. S. Palmer, Assistant Chief of the Survey, is a 'Directory of State Officials and Organizations Concerned with the Protection of Birds and Game,' a publication which admirably supplements Dr. Palmer's Bulletin No. 12, noticed above.

The increasing demand on the part of the public for information concerning local bird-life is frequently manifested now-a-days by the appearance in the press of popular articles by ornithologists, whose signature gives to their contributions a value not generally to be found in newspaper natural history. Thus we have lately received copies of the San Juan (Porto Rico) 'News,' Detroit 'Free Press,' and 'Prince Edward Island Magazine,' containing instructive articles on local birds, by G. B. Pratt, H. S. Warren and John MacSwain, respectively.

The 'Western Ornithologist'—formerly the 'Iowa Ornithologist'—is published on the fifteenth of every other month at Avoca, Iowa. It is edited by Chas. C. Tryon, with the assistance of Carl Fritz Henning and David L. Savage, who are to be congratulated on both the appearance and contents of their magazine.

Mr. Reginald Heber Howe, Jr.'s quarterly 'Notes on Rhode Island Ornithology,' which is published by the editor at Brookline, Mass., contains interesting records from the state to a study of the avifauna of which it is devoted.

We learn from the July 'Iris' that at a recent meeting of the British Ornithologists' Club a resolution was unanimously carried that any member of the "Union" who should become respopnsible for the destruction of certain birds, which the persecutions of egg-collectors threaten to exterminate in Great Britian, should be severely censured by the "Union."

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Edited by FRANK M. CHAPMAN

Published by THE MACMILLAN COMPANY

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Bird-Lore's Motto:

A Bird in the Bush is Worth Two in the Hand.

BIRD-LORE is printed at Harrisburg, Pa. and in the future it will be mailed from that city. All communications, therefore, in relation to the publication of this magazine, notices of change of address, etc. should be addressed to The Macmillan Co., Crescent and Mulberry streets, Harrisburg, Pa.

AN accumulation of notes from the field and publications for review has compelled us to omit from this issue the Department for 'Teachers and Students.'

THE position taken by the Audubon Societies, thus far heard from, in regard to the proposed agreement with the Millinery Merchants' Protective Association, to the effect that to sanction, even passively, the killing of birds anywhere would violate the cardinal principles of the Societies, is unanswerable, and renders impossible further negotiation with the milliners, which we are assured would have resulted in securing for our birds such protection as we cannot now expect to give them for many years. Thus, for example, when discussing with the representatives of the milliners the proposed agreement, the editor of this magazine demanded that the term 'North American bird' must be interpreted to mean any species of North American bird without regard to the country in which it was found, and that birds whose feathers could not be distinguished from those of North American birds be included, the demand was agreed to; and when it was explained that such agreement meant the complete abandonment of aigrettes and the practical discontinuance of the use of the feathers of Grebes, Gulls, and Terns, they still accepted this interpretation of the agreement.

Now, in our opinion, when houses representing 90 per cent of the millinery trade in this country propose not to deal in the feathers of the very birds which we are at present using our best efforts to protect, the proposition is at least worth considering. We do not, however, intend to discuss the matter further, for, as we have said, the reply made by the Audubon Societies thus far heard from is unanswerable, and as these Societies represent a majority of the more active Societies, we sincerely hope that their verdict will be accepted by those which have not as yet acted on the matter.

IN commenting on the milliners' proposed agreement in 'The Auk,' the official organ of the American Ornithologists' Union, Dr. J. A Allen writes, "This appeal is certainly entitled to respectful consideration, since, on the one hand, it guarantees on the part of a powerful association of dealers, that the killing of North American birds shall at once cease, and that all traffic in them for such use shall also cease after a certain date."

We earnestly hope, however, that the American Ornithologists' Union will support the Andubon Societies in the stand they have taken, for nothing could be more disastrous to the cause of bird protection than lack of harmony among its advocates.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

DIRECTORY OF STATE AUDUBON SOCIETIES

With names and addresses of their Secretaries

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Massachusetts	MISS HARRIET E. RICHARDS, care Boston Society of Natural History, Boston.
Rhode Island	MRS. H. T. GRANT, JR., 187 Bowen street, Providence.
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California	MRS. GEORGE S. GAY, Redlands.

Bird Protection and the Merchant Milliners

This year is full of significance in matters relating to bird protection, and a new impulse seems sweeping over the country regarding the entire matter. Moreover, the increased interest is traceable to perfectly sound and reasonable thinking, brought about by the increase of nature-study and the systematic circulation of the accepted and indisputable facts concerning the relations between birds and agriculture, as well as the attention attracted by protective legislation.

To bear out this latter statement, I would ask every officer of an Audubon Society to read Bulletin No. 12 of the U. S. Department of Agriculture, Division of Biological Survey, entitled 'Legislation for the Protection of Birds Other than Game Birds.' This pamphlet of nearly one hundred pages, written by T. S Palmer under the direction of Dr. Merriam, gives all existing laws, so that it may be seen at a glance in what States, or counties of a given State, bird laws are either absent, defective, or efficient. A thorough reading of this summary is sure to bring about much State legislation as well as lead to national cohesion, for, as the introduction says, 'The protection of birds is a national, not a local, question.'

The history of legislative protection is briefly given, beginning in 1791, when New York enacted a law protecting Heath Hens, and ending with the text of the Lacey Bill, which became a law in May last. This bill gives wide discretionary powers to the Department of Agriculture, and is of the greatest importance.

Another matter, formulated, doubtless,

owing to the legislative attention given bird protection, is the proposed agreement between the Millinery Merchants' Association and the various bird protective organizations, which was published in the June issue of this magazine, the Editor requesting that opinions regarding the proposition be forwarded him for transmission to the aforesaid association.

Owing to the fact of its being the vacation season, it has been impossible to hear from all the Audubon Societies. The New England Societies — New Hampshire, Massachusetts, Rhode Island, and Connecticut, together with Wisconsin, stand firmly together and *against* the proposed agreement *in toto;* Connecticut and Wisconsin having expressed their objections in detail through Mr. Willard G. Van Name and Prof. E. A. Birge, of the University of Wisconsin, respectively, while Mr. William Brewster, the President of the Massachusetts Society, a thorough scientist and an influential member of the American Ornithologists' Union, is also wholly opposed to the measure. He writes: "If any attempt is made to have this agreement accepted by the American Ornithologists' Union I shall use all the influence I possess to defeat it. * * * It does not seem to me to be so much a question of expediency as of absolute right and wrong. No such compromise is possible."

From a political, as well as an ethical standpoint, it is difficult to believe that two opinions can be held about this matter, either by the American Ornithologists' Union, representing the strictly scientfic, or the Audubon Societies, the more secular but equally logical side of bird protection.

We should not criticise the milliners, who, having a perfectly good right as business men to protect their invested capital in any way *not in violation of the law*, seek to prevent the enactment of laws prejudicial to their own interests, by making an agreement to disarm those by whose influence the law is most surely, if slowly, drawing about their traffic. But should we not bring upon ourselves and our work deserved reproach if we became party to any such agreement? Almost all reforms must necessarily cause temporary inconvenience to some one, but that objection cannot be held against the bird-protective reform unless the suppression of the barbarous trade of the plume-hunter is objected to. The millinery trade can find ample scope for its capital and work for its employees in handling ostrich plumes and the feathers of numerous species of domesticated birds, the supply of which is as easily regulated as that of the barnyard fowl, and with the use of which no one will interfere. We are not seeking, as some suppose, to break up a bread-winning industry.

The case may be summed up as follows: A *certain number* of importers, manufacturers and dealers in raw and fancy feathers are willing to promise not to buy any more feathers of North American birds. They retain, however, the right to manufacture and sell all the plumage of such birds now on hand until such sale shall be stopped by a law or laws, *which shall be approved by the A. O. U. and the Audubon Societies and also do justice to the trade!* In return for this most curiously worded concession, the A. O. U. and the Audubon Societies are asked to give a pledge to prevent the enactment of the very laws that shall terminate and fix the time when the permission to sell the feathers of the North American birds on hand shall end!

We are further asked to pledge ourselves not to interfere with the manufacture or selling of the plumage or skins of "edible birds, game birds killed in their season, and all birds which are not North American."

What birds are inedible? What is a North American bird? Is a bird taken in Brazil during its winter sojourn an American or a Brazilian bird? Who is to settle this matter of citizenship, who furnish the birds with passports, who give them protective papers of citizenship that the plume hunter shall respect?

It appears that there are some few people (merely enough to furnish the usual ex-

ception that proves the rule) who, in the first enthusiasm at the knowledge that the milliners had offered a compromise, read this agreement to mean that if we would promise to allow the milliners to traffic unmolested in the feathers of all birds *not North American*, they would in turn refrain from dealing in the plumage of the native birds. They hailed this as at least a sure means of saving our own birds, even though it put a premium upon the slaughter of the equally valuable species of other countries, saying "Foreign countries must look after their own birds; we cannot sacrifice ours because they cannot protect theirs." Also arguing that, as it seems at the moment improbable that the United States will pass a law making the use of the plumage of foreign birds illegal, there can be no harm in promising not to work in favor of such a measure.

Considering the proposition from even this ultra practical standpoint, no such construction can be put upon it as it is worded. We are asked plainly to pledge ourselves to refrain from pushing any legislation which the millinery trade shall consider unjust to itself.

The ethical side of the question is even more plain, but of equal importance. No Audubon Society that is true in spirit, as well as in letter, to its platform and constituents can sign this agreement; for to do so is literally saying to its members, "We will not interfere with you even if you cover your hats with birds *so long as they are marked 'killed in Europe'!*".

As I have always said, the law is the only path by which satisfactory protection can be given to the birds. The law is the voice of public opinion, sometimes tardily heard, but sure to speak at last. Public opinion has been turned toward bird protection largely by the very societies who are now asked to pledge away their legislative power for what? A mess of pottage composed of *inedible native birds!*

The fact that international laws may be difficult of passage is no reason for ceasing to work for them. "Every man for himself and the devil take the hindermost," is a poor motto for organizations such as ours. It was this spirit that opposed bitterly the International Copyright bill not so very long ago. Notwithstanding this, International Copyright is now a law!

MABEL OSGOOD WRIGHT.

Reports of Societies

RHODE ISLAND SOCIETY

(*Third Annual Report, March 26, 1900*)

In the third annual report of the Society, it cannot be said that Rhode Island women have given up wearing feathers, or that our boys have stopped collecting eggs; but there can be no doubt that a public sentiment in favor of bird protection has been aroused and is steadily growing, not only in our state, but in all parts of the country. Audubon Societies exist in at least twenty different states, and many other organizations are working on the same line.

During the past year five Bird Commissioners have been appointed by the Governor of Rhode Island, and from the character of those who have accepted the office, we have every reason to believe that the laws will be enforced. A committee appointed by the Audubon Society will do what is possible to secure better legislation in regard to certain useful birds which are now unprotected, such as Hawks, Owls, Meadow-Larks, and Gulls.

The Society has endeavored to keep its aims constantly before the public. About fifteen hundred leaflets have been distributed. Thirteen hundred pictures of birds, copied by the Massachusetts Society from their calendar, and accompanied by text, have been purchased and sent to the superintendents of our country schools and given by them to scholars interested in nature study.

The present Commissioner of Public Schools, Mr. Thomas B. Stockwell, is anxious to promote the study of birds, and at the request of your secretary, has kindly written a letter to the school superintendents of the state, asking them to

call the attention of the teachers to the purposes of the Audubon Society, and to bespeak their coöperation.

The exercises appointed by Mr. Stockwell for Arbor Day will this year relate largely to birds; an appropriate plan, since birds are of the utmost importance to forestry and agriculture.

The expediency of having a special Bird Day established by law, or of combining Bird Day with Arbor Day, is still under consideration by the Directors of this Society.

The latest report from the United States Department of Agriculture alludes to the extraordinary interest in bird study which has recently developed, and attributes it to the introduction of nature study in the schools, and to the efforts of the Audubon Societies in the cause of bird protection. The report considers the chief obstacle to the success of bird study in the schools to be the lack of requisite knowledge on the part of teachers.

On the 9th of last October a millinery exhibition was held by this Society at the Narragansett Hotel. The milliners entered cordially into the scheme, and about one hundred and fifty hats were exhibited; the display proving conclusively that the plumage of wild birds can be discarded without violating the laws of fashion. In spite of unpleasant weather, the parlors were thronged with visitors. Four ribbon prizes were awarded; but it is now the opinion of the committee in charge that prizes, even of that nature, were a disadvantage.

A lecture upon winter birds was given under the auspices of the Society, on January 27, by Miss Annie L. Warner, of Salem, Massachusetts.

Mr. Frank M. Chapman lectured at Sayles' Memorial Hall on the 16th instant upon "Bird Studies With a Camera." The lecture was illustrated by fine stereopticon views. It was free to the public, and the large hall was filled to its utmost capacity.

The annual meeting of the Kingston branch was well attended, and addresses were made by Dr. George W. Field, Professor Card and your secretary. Several informal talks have also been given by your secretary in various places.

The traveling library is still used by the branch societies, and four new books have been purchased by the committee.

Our membership at the present time numbers nearly four hundred and fifty Of this number one hundred and eight persons are so-called active members and pay an annual fee of one dollar. As it is almost entirely by means of the fees that the work of the Society is carried on, I would urge those who think the birds worth saving to assist us by bringing in new members. This is not a difficult task, for many are interested in the cause and need but little persuasion.

The young people are not so well represented in the Society as could be wished. Parents and teachers can interest them in nature study, teach them the usefulness of birds, and direct them in correct paths of research.

All members are again urged to protest against the use of wild birds and their plumage for millinery purposes, and to use their influence in every possible way to advance the work of bird protection.

ANNIE M. GRANT, *Sec.*

OHIO SOCIETY

(*First Annual Report*)

The Audubon Society of the state of Ohio has completed its first year as an organization. Its existence as a society is due to the untiring zeal of Miss Clara Russell. Humble, but strenuous efforts on her part led to the first meeting of October 8 in the Eden Park Shelter House, at which Dr. H. T. Keckeler presided, and finally to the meeting of October 21, 1898, in the Lecture Room of the Natural History Society, at which Mr. Wm. Hubbell Fisher presided, where organization was effected.

Among the plans devised to illustrate the purposes of the Audubon movement was to give from time to time a public lecture, and W. H. Venable led the series by delivering an address before the Society

and its friends on April 19, in the Teachers' Club Room.

Another plan acted upon was the sending of notices to the principals of the public schools, proposing the celebration of Bird Day in conjunction with Arbor Day. With these proposals there were compliances, and some of our own members took part in the exercises held in the suburbs on that day. Later, a committee called the School Committee, was appointed to personally visit school districts where interest in the purposes of the Audubon Society seemed lukewarm, and a knowledge of the Society and its aims was still further extended. At the September meeting, another step onward was taken when the members voted to consider some subject of ornithological interest at each monthly meeting.

It may be stated in conclusion, that while this Society has avowed one of its purposes to be the prevention of cruelty and wanton destruction of birds and their nests, eggs and haunts, it aims to do so, not by prosecuting but by educating.

One of the fondest hopes of its founder, Miss Russell, was that a wide dissemination of a knowledge of birds would evoke such an interest and friendliness for them, that women could not thoughtlessly wear their plumage and men and boys could not wantonly destroy them.

And when we consider that the majority of the Society's members are educators in either morals or intellect, it seems possible for right efforts to lead to its achievement.

Respectfully submitted,

HARRIET H. HASTINGS.

WISCONSIN SOCIETY

(*Third Annual Report*)

Very early in the history of the Wisconsin Audubon Society the executive officers decided that in no other way could they do such good work for bird protection as by arousing the interest of children in the matter, and finding that Mr. L. D. Harvey, the State Superintendent of Public Instruction, stood ready to assist them, they threw most of their energy into this channel. After three years they feel that results have justified this policy. By April 1, 1900, 380 school branches had been organized, with an aggregate membership of 10,290. In this way the Society is reaching not only the children but their parents, and although there has been scarcely any increase in the adult membership, there can be no question that a very wide-spread sentiment of opposition to the fashion of wearing feathers has sprung up, and that many hundreds of women who have not joined the Society have resolved to act hereafter in accordance with its principles.

The children are controlled and directed through Miss Boynton's little nature study paper, "By the Wayside," for which every school branch must subscribe. Each issue of this paper contains the description of some common bird, and prizes for observations and good reports are given to teachers and children.

Through the generosity of Mrs. George Gordon, of Milwaukee, it has been possible to purchase a small library of bird books, which have been placed in charge of Miss Bossert, 719 Franklin St., Milwaukee, who will be glad to receive gifts of additional volumes These books are intended for the use of school branches.

In March a series of illustrated lectures upon birds and wild animals was given under the auspices of the Society, in different towns of the State, by Mr. Ernest Ingersoll.

All persons interested in bird protection are urged to become Associates, since it is upon this class of members that the Society depends for its income.

The different classes of membership are as follows:

Patrons, paying $25.

Life Associates, paying $5

Associates, paying $1 annually.

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Teachers and children paying no fee.

ELIZABETH GIFFORD PECKHAM,
Secretary.

MILWAUKEE, April 20, 1900.

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CONTENTS

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By MABEL OSGOOD WRIGHT

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BOWER OF SPOTTED BOWER-BIRD
(Showing sheep's bones used as decorations)
Photographed from nature by A. J. Campbell

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The Bower-birds of Australia

BY A. J. CAMPBELL, Melbourne

Author of "Nests and Eggs of Australian Birds"

With photographs from nature

THE bower-building birds, with their cultivated tastes for architecture, are amongst the most interesting and beautiful of Australian birds, while some of their eggs are most remarkable in appearance. There are ten or eleven species, medium-sized birds—about twelve inches (more or less, according to the species) in length—compactly built and shapely. Their food is wild berries and fruits of various kinds. Occasionally they are not averse to the cultivated article, therefore the birds are not altogether in favor with orchardists.

The Satin-bird (*Ptilonorhynchus violaceus*)—the male especially beautiful for his lustrous, satin-like, blue-black coat and lovely violet eyes—dwells in the forests—more particularly the coastal—of eastern Australia. The females wear a grayish-greenish mottled dress, as do the young males, but differ in having the under surface a more yellowish tone. The males do not don their shining blue-black coat until the third or fourth year, some observers say the seventh year.

Satin-birds thrive in captivity. They are not excellent whistlers, but readily learn to articulate words and imitate familiar domestic sounds, such as the mewing of a cat, etc.

It is somewhat remarkable that notwithstanding these birds are plentiful in parts, their eggs are rare in collections—the eggs of all Bower-birds are rare—in fact, the eggs of two species have not yet been discovered.

The eggs (usually two, occasionally three) of the Satin-bird are of a rich cream color blotched irregularly with brown, and measure nearly 1¾ inches in length. The nest, which is usually situated

about twelve feet from the ground, in a shrubby tree or bush, is loosely constructed of twigs, leaves, etc.

The curious play house, or 'lover's arbor,' is built upon the ground. It has apparently no connection with the nests, which may be any distance away. One of these bowers I collected in Gippsland, Christmas-tide, 1884. It was situated amongst brackens in open forest. There was a cleared circular space about twenty-six inches across, in the ferns, floored with twigs well trodden down. In the center were erected two parallel walls of pliable twigs, tapering and arch-

BOWER OF THE SATIN-BIRD
Photographed from nature by D. Le Souëf

ing towards the top, which was twelve inches in height. The walls were ten inches long and six inches apart. In the avenue and roundabout were placed gay feathers of Parrots. It is strange that the builders of so neat a structure should construct a slovenly made nest. It has been ascertained that more than one pair of birds frequent the same bower, which is really a 'lovers' bower'—a *rendezvous* for match-making.

The illustration of a Satin-bird's bower *in situ* is from a photograph by my friend Mr. D Le Souëf.

The Spotted Bower-bird (*Chlamydodera maculata*) is a fine species inhabiting the arid and dry interior provinces, being especially at home

on sandy pine ridges or when the myall and brigalow (species of acacias) flourish.

This bird derives its name from the beautiful spotted markings of its plumage, which is of various shades of brown. The male wears on the back of the neck a band, or frill, of a most exquisite shade of rose-pink—a rare color in birds and only occurring in one other species (not a Bower-bird) in Australia. The Spotted Bower-bird has a harsh, scolding note, but it is not generally known that it is an accomplished mocking bird and can mimic the vocality of many birds of the bush, barking of dogs, etc.

NEST AND EGGS OF THE REGENT-BIRD

A farmer friend related to me an amusing story regarding the mimicry of a Spotted Bower-bird. His neighbor had been driving cattle to a given place and on his way back discovered a nest in a prickly needle-brush (hakea). In 'threading' the needle-like branches after the nest he thought he heard cattle breaking through the scrub and the barking of dogs in the distance, and at once fancied his cattle had broken away, but could see no signs of anything wrong. He heard other peculiar noises, and glancing at his dog as much as to say, "What does that mean?" he saw the sagacious animal with head partly upturned, eyeing a Bower-bird perched in the next tree.

The nest is somewhat loosely constructed of twigs, and is usually placed in a thick bush or amongst the forked branches of a small tree.

The eggs (two or three) are beautifully and wonderfully marked, greatly resembling those of the Regent-bird shown in the illustration.

During a trip towards the interior in September, 1893, I enjoyed the opportunity of examining many play-grounds of Spotted Bower-birds, and took successful photographs of some (see frontispiece). A typical bower may be described as being placed on the ground under a clump of bushes with thistles and other vegetation growing around. The floor inside and out is composed of twigs well trampled down; exterior portion of the walls made of twigs placed upright, interior sides composed of yellowish grass-stalks with the seeding parts uppermost. At either entrance of the bower is placed a number of bones—knuckles, ribs, and vertebræ—of sheep. In one instance ninety bones were counted at one entrance and ninety-two at the opposite end, while inside the bower itself were twenty-four bones, besides other ornamentation, such as seeds, small green branchlets, pieces of glass, etc. I know of one bower at which no less than 1,320 bones were counted.

The average dimensions of those play-grounds were—diameter over all, 55 inches; length of bower or avenue, 20 inches; width between the walls, 7 inches; height of walls, 12 inches; thickness of walls near base, 6 inches.

Of all the gorgeous birds that emblazon the sub-tropical scrubs of Eastern Australia, none exceeds the beauty of the male Regent-bird (*Sericulus melinus*) in his plumage of simple black and gold. The black velvety coat is strikingly relieved with the richest of bright yellow on the crown of the head, back of neck and greater part of the wings. The female wears an æsthetic brownish olive mottled dress, suited with dark brown eyes and bill. But the male has yellow-colored eyes and bill to match his glorious golden livery.

During an excursion to the luxuriant scrubs of the Richmond river district, I found Regent-birds fairly plentiful. But although, well aided by a hardy companion, I prosecuted a vigorous and toilsome search through dense labyrinths of humid scrub and thorny brakes of prodigal growth, while the thick foliage of the taller trees caused a perpetual twilight underneath, yet I returned without discovering its nest. It was an experience akin to seeking for the proverbial needle in a hay stack.

One evening I discovered a bower on the bare forest floor underneath thick scrub, and a male bird gaily tripping through it. The structure was perfect, but not so large as those I have seen built by other bower-building birds, being only 7 or 8 inches high, with walls 7 inches broad at the base, and an average width inside of 3½ inches.

After much difficulty a photograph was taken of the interesting structure (see illustration).

The last discovered species and one of the most beautiful of Bower-birds, is the Golden Bower-bird (*Prionodura newtoniana*), which vies in its golden splendor with the Regent-bird. Its home is the rich palm scrubs of Northern Queensland. The rare and handsome bird was discovered by the collector, Mr. K. Broadbent, and was described and dedicated by Mr. DeVis (Queensland Museum) to the venerable ornithological savant, Prof. Alfred Newton.

BOWER OF THE REGENT-BIRD
Photographed from nature by A. J. Campbell

An authenticated nest and eggs of the Golden Bower-birds has not yet been discovered. But regarding its wonderful bowers—probably the most astonishing instances of bird-architecture known—Mr. DeVis writes: "From their [collector's] notes and sketches it would appear that the bower is usually built on the ground between two trees or between a tree and a bush. It is constructed of small sticks and twigs. These are piled up almost horizontally around one tree in the form of a pyramid, which rises to a height varying from 4 to 6 feet. A similar pile of inferior height—about 18 inches—is then built around the foot of the other tree. The intervening space is arched over with stems of climbing plants, the piles are decorated

with white moss, and the arch with similar moss mingled with clusters of green fruit resembling wild grapes. Through and over the covered run play the birds, young and old, of both sexes. A still more interesting and characteristic feature in the play-ground of this bird remains. The completion of the massive bower, so laboriously attained, is not sufficient to arrest the architectural impulse. Scattered immediately around are a number of dwarf, hut-like structures—'gunyahs,' they are called by Broadbent, who says he found five of them in a space ten feet in diameter, and observes that they give the spot exactly the appearance of a miniature black's camp. These seem to be built by bending towards each other strong stems of standing grass, and capping them with a horizontal thatch of light twigs."

SCREECH OWL
Flash-light photograph by A. J. Pennock, Lansdowne, Pa.

The Orientation of Birds

BY CAPTAIN GABRIEL REYNAUD, French Army

Translated from the French by Mrs. Clara J. Coxe

(*Concluded from page 103*)

E have demonstrated that the combined working of the five senses is limited, and is not sufficient to explain the act of distant orientation. The latter is governed by a particular organ that we have called the *sense of direction.* This sense has its seat in the semi-circular tubes of the ear. Numerous experiments have proved that any lesion which impairs this organ brings an immediate disturbance in the faculty of orientation of the injured bird.

The semicircular tubes of vertebrated animals are made up of three little anserated membranes filled with a liquid called *endolymph.* These three semicircular conformations are independent of each other, except in a point where their cavity is common, or where they issue in a little sack called *utricule.* They are generally situated in three perpendicular planes.

Next to the wonderful experiments of Flourens in 1824, and the autopsies of Mènières, their operation has been studied by Czermak, Harless, Brown-Sequard, Vulpian Boetticher, Goltz, Cyan, Brewer, Mach, Exuer Bazinski, Munck, Steiner, Ewald, Kreidl, Pierre Bonnier. We know now that their function is directly in harmony with the exercise of equilibration and quite independent of the sense of hearing. Mr. P. Bonnier, after studying in all the animal series the character of the organs which precede the labyrinthic formations, and lastly these themselves, in combining the records of comparative anatomy and physiology, and verifying them by clinical surgery, has been able to demonstrate that these organs lead directly to what he calls the *sense of altitudes*, which supplies the figures or images of position, of distribution and, consequently, movement and displacement in space.

We do not yet know in any very precise way the physiological excitant which governs the semicircular canals. While waiting until new researches permit us to settle this interesting point, we will try to determine the method of the operation of the sense of direction. This way of proceeding has nothing, after all, illogical in it. In the natural sciences, as well as in others, the knowledge of effect precedes that of cause.

The animal entering upon unknown ground takes on his return the reverse scent of the road, *more or less sinuous*, followed in going ; arriving in known ground he directs himself to reach his end in a straight line.

The Carrier Pigeon freed at 500 kilometers from his cote, on his

return skirts along the railway which brought him to his place of liberation; he is there guided by the sixth sense. Having in this way reached the known horizon, at 80 kilometers from his dwelling, for example, he ceases having recourse to the sixth sense and travels by sight straight to his own roof. Other times the Pigeon does not think of making use of the five senses on arriving on unknown ground. In this case he follows his reverse scent as far as the Pigeon cote. He passes it sometimes. We have seen him, on coming back from a long journey, pass at 40 or 50 meters from the Pigeon cote, repass it, and enter at the end of an hour or two, having perhaps crossed the wrong direction in this way from 30 to 60 kilometers.

If we carry away at 10 kilometers from the Pigeon cote a Common Pigeon, accustomed to use exclusively the five senses, and a Carrier Pigeon, trained to long journeys, we will make an interesting discovery in freeing them simultaneously.

The Common Pigeon, flying by sight, will generally make up his mind much more rapidly than the Carrier, which will take his direction with care by the aid of the sixth sense.

From these facts we may conclude that the sixth sense does not combine with the five others. It enters into activity in the zone where the five senses are mute, and continues sometimes to operate in the known zone to the exclusion of the other senses.

It seems that it is not controlled by any impressions emanating from the route followed, and that it is in some way a subjective organ. We made, with regard to this, a very curious observation. When we transport in a railway car a basket of Pigeons having already the knowledge of travel, we see them show the greatest agitation when we arrive at a station where they have once been released, whilst they remain indifferent to other stopping places. Now, we will admit without much trouble, that a Pigeon shut up in a basket which, in turn, is enclosed in a dark car, cannot from the uproar tell one station from another. His sight and other senses are no help to him, since he is as completely as possible isolated from what is happening outside. However, he knows in a very exact way where he is by connecting it with his point of departure. We were then right in saying that an animal brought from a distance possesses an idea about his location quite subjective, independent of the medium that he crosses at the time.

We have explained that the animal lives cantoned in a domain where he meets with everything that the instinct of preservation of the individual and of the species calls for. This domain, more or less extended for the wild beast, is reduced for the Pigeon, for example, to the four walls of the Pigeon cote. Does he not indeed

find there, as the fabulist happily expresses it, "good supper, good lodging, and the rest of it?" On the other hand, if it is true that local knowledge is not strictly indispensable to assure the return to the lodging, and that the sense of distant orientation is strictly sufficient to guide the animal, we will admit without question that it is possible to make a movable Pigeon cote and accustom its inmates to a nomadic life.

Let us suppose that we have transplanted, with all its belongings, a Pigeon cote in the midst of new surroundings, without the least disturbance being brought to the existence of its inhabitants. The latter set at liberty from the time of its arrival will go far away, perhaps, but the Law of Reverse Scent will assure their return.

We remarked before that the straying Pigeon knows how to find again the point of release hardly caught sight of in the morning, and to which no agreeable remembrance, no interest, attaches him. With still more reason the inmate of a movable Pigeon cote must try to reconstitute his itinerary. If we carry him away a distance for the release he will come back to find his home at the precise point that it occupied when he left it. The movable cote, arriving in a new lodging place, would be in a condition to render almost immediate service in that locality. This new way of employing messenger Pigeons, unattainable, according to the ideas we have held up to this time, in matter of orientation, is only the strict application of our theory.

Some interesting experiments have proved in a conclusive manner that the fidelity to the natal Pigeon cote could be reconciled with a nomadic existence. A certain number of Pigeons are born and brought up in a wagon arranged as a Pigeon cote. They have no other lodging than their rolling habitation. It matters little to the Pigeon whether the wagon stops today in the heart of a valley, looks for shelter tomorrow in a forest, or settles itself for some time in the maze of houses which form a great city. If we should carry him away some distance from the cote for the release, he will not be guided on his return by his local knowledge, necessarily very slight, that he may have of the surroundings of his wagon, but by his sense of direction which gives him a subjective idea of his position relating to the cote.

Practice has, on all points, confirmed our theory. We have had the chance to make some very interesting observations, and we will cite some facts which have a direct reference to our argument. *

*Our experience permits us to settle an interesting point. According to M. Dureste, eggs stirred with a certain violence for a long time do not hatch out. We have found that the rolling on the highway, on the pavement, or in a railway car when the car sets in motion, does not modify in any way the condition of the hatching

It is just to add that in the movable Pigeon cote the Pigeons brood with the same regularity as their fellows in an ordinary Pigeon cote.

A carriage Pigeon cote is stationed for twenty-four hours at Epernay. Its inmates are not set at liberty, whilst the Pigeons in the neighboring carriages are set free for two hours, then carried farther away for the release. The next day our carriages have all moved near Châlons, with the exception of the one whose Pigeons had not been freed at Epernay. These birds are divided among the other carriages, which are modeled exactly like the first they occupied. At Châlons the cotes are opened and Pigeons are set at liberty. Some of these, which had made the journey from Epernay to Châlons in a strange carriage, set out for Epernay and found their rolling habita-

PIGEON CARS OF THE FRENCH ARMY
Photographed from nature

tion. How did they succeed in reconstituting their itinerary in the inverse sense from Epernay to Châlons and find again their carriage in a situation of which they could not know the surroundings?

The law of inverse scent alone permits this fact to be explained. We have repeated this curious experiment many times.

During the stationing of the cote at the chateau de Morchiès two Pigeons strayed away. We found them again at Bapaume, a preceding lodging place of the Pigeon cote. One was retaken; the other escaped. People sent word to us of his passage in all the localities where his wagon had been stationed. He arrived, in this way, at Houdain. From there he set out for Evreux, resuming the reverse scent of the journey made a few days before in a railway car. At Evreux, where the Pigeon cote had been stationed for many months, we succeeded in capturing him. This itinerary verified, one

may say, step by step, is it not the best proof that we can appeal to to support our theory? Thanks to the Law of Reverse Scent, we can almost always determine the precise point where to find a lost Pigeon. We succeed in this way in limiting our losses, which would be without it numerous and difficult to repair.

The return of a Pigeon to a lodging which is displaced is not an exceptional fact. We could cite many examples of the same kind taken from the history of birds.

We made at sea some experiments which confirm our theory. The absence of guiding points and the suppression of all local memory rendered the releases made at great distances from the coast very interesting.

On the other hand, observation was easier than on land. It was always possible to note the initial direction taken by the Pigeons leaving the ship.

We left for New York with a number of Pigeons taken from the colombophiles of Normandy. The 25th of March, the day of sailing, we set at liberty ten Pigeons, successively, at distances varying from 100 to 250 kilometers from Havre.

All the Pigeons acted in the same manner; none of them raised their wings to fly high and see afar. They descended almost to the level of the water, turning two or three times about the ship, and took without hesitating the reverse scent of the route we followed. They all reached the Pigeon cote.

The next day, the 26th of March, our steamer stopped to save the crew of a shipwrecked vessel, the Bothnia. We sent off, through a howling tempest, seven Pigeons carrying dispatches announcing the event.

Our messengers made useless attempts to take the route from the East, the reverse scent of the ship. Carried away by a violent storm, they fell on some vessels or even took refuge on the coast of Spain. One of them carried his dispatch in the Gulf of Gascogne to the 'Chatterton,' and our message reached its address.

The 31st of August, on the banks of Newfoundland, we sent out a Pigeon which, after much hesitation, flew toward the East. He reappeared at the end of two hours to rest, and then set out again, outstripping the vessel in its course. He arrived at Noroton, in Connecticut, one day before our entrance in the harbor of New York.

This fact shows that the bird, obedient to the sense of distant orientation, has a very precise idea of a direction followed before. After having taken a good initial direction, our bird alters his mind and commits a fault of instinct, but even in this last case he does not wander to the right or the left of the followed route. Thus,

it seems, he can only move himself on the axis of the same route, and there is for him only two solutions, the right and the wrong.

In coming back to France we sent out some American Pigeons, which all took their bearings without hesitation over the wake of the vessel and took up the reverse scent of the route followed.

On nearing Europe we sent out at 900, 600, and 400 kilometers some French Pigeons which had been shut up on board the vessel and kept to be released on the return trip. We noticed that all having the same idea of following the route took their initial direction over the wake of the vessel, flying toward New York. The greater number changed their minds and came back, afterward outstripping the steamer in its homeward voyage. But the losses were greater than in going, reaching the proportion of 20 per cent. These are evidently the Pigeons which, skirting closely the reverse scent of the route followed, went astray in the open sea.

We assert once more that the land does not appear to exercise any attraction for our messengers. Sent out from the Scilly Islands, from the island d'Aurigny, or the peninsulas of Cotentin, they all follow the same direction—east, west—some going in advance of the vessel, others following the reverse scent of its route. The Pigeons rise a little higher than at the time of leaving France; the weather is clearer, but they do not seem to have recourse to the sense of seeing in order to take their bearings. None of them bent his flight over the land in sight.

We have verified by a late experience, very easy to reproduce, that observation through the medium of the five senses amounts to nothing in guiding them back to the Pigeon cote. Five Pigeons under the influence of chloroform are transported from Orleans to Evreux. They do not know this last locality, where we are taking them for the first time. They are watched with great care and when, two days after, they appear to have returned to their normal condition, we set them at liberty and they return as usual.

It seems that the chloroform suppresses the exercise of the five senses, which have during the journey registered no impression, and are mute at the awakening.

The sense of direction, on the contrary, whose action is based on the automatic and mechanical registration of the road followed, continued to work, in spite of the chloroform, absolutely like other mechanical functions—the circulation of the blood, the digestive organs, and respiration—in some way, without the knowledge of the animal.

We have vainly sought for a theory in the works of naturalists which explains in any satisfactory way the acts of orientation accom-

plished by the animal. Many very interesting statements have been made concerning their habits, and their manner of living; but when it is a question of tracing back effect to cause the observer has generally taken a false direction. Wrongfully taking himself as a term of comparison, he asks what he would do in order to accomplish a certain instinctive act occurring among beasts.

It is just in this way that some colombophiles attribute the return of the Pigeon to a wonderful local memory. In his daily recreation the animal flying above the Pigeon cote would note the salient inequalities of the soil, would study their situation, and would use them for guiding points to his dwelling, tracing in this way a veritable triangulation on the country he inhabits. According to others, the animal would base himself on the meteorological record, or else would acquire, in time, a thorough knowledge of the local magnetic currents. Such a hypothesis explains one mysterious fact by other facts still more mysterious. Some have even asserted that the Pigeon takes his direction according to the course of the stars. We think that this theory is fantastic, and must be rejected.

The animal could not be a mathmetician, geometrician, electrician, or astronomer. The explanation we advance is more simple.

We have stated that the facts of orientation group themselves under two categories: (1) near orientation and (2) distant orientation. Near orientation is based on observation, employing the five senses — objective organs. It puts in play the memory, the reason, the free will of the animal. It chooses one solution and takes the shortest road for its return.

Distant orientation is based on the functional activity of a *subjective organ* which is situated in the semicircular canals of the ear, and which registers mechanically the road passed over: this sense of direction given to the animal the idea of its position for returning to the points of its departure. The return is governed thus by the Law of Reverse Scent. The animal does not now choose its route; there is but one solution at its disposal — to return by the road which it came.

Orientation over familiar ground, based on observation, memory, reason and, in a certain measure, free will, is an intellectual act; Orientation over unknown and distant land, based on the functional activity of an organ, is an impulsive and irrational act.

The most gifted animals in regard to distant orientation are not, in effect, the most intelligent, but are those which possess the most powerful means of locomotion. Thus it is that birds, infinitely less intelligent that certain quadrupeds, have over the latter an incontestable superiority for distant orientation.

A Pair of Killdeer

BY MRS. HENRY W. NELSON

EARLY in June, 1899, I was driving in a park in western New York, when my attention was drawn to a pair of strange birds, who circled round the carriage, sweeping down near the ground and rising again with anxious, distressed cries. They were beautiful birds, strikingly marked, with white foreheads, and rings around the throat — about the size of a light-bodied Pigeon, and with long legs. Presently my eye caught a movement on the ground, and I saw what looked like a little chicken running along at full speed. I was out of the carriage in a moment, and gave chase; the big birds were evidently the parents, and in great anxiety as to my intentions. I easily overtook the little runner, though I had to walk fast to do it, and then down he dropped on the ground, seemingly quite exhausted. I was filled with remorse, for I feared he had been forced to run so fast as to kill him. I gently picked him up, noticed the long legs, the three toes, long, slender bill, and pretty gray and white coloring, and laid him down again, venturing only faintly to hope that the mother's care might revive him. As I retired she came flying up and cuddled down over him, and I left — feeling very brutal. The gardener told me that the little thing had been hatched only three hours before! He had watched the old birds, from the time they had laid their eggs on the bare gravel drive without any pretence of a nest, and had moved them — the eggs — close to the edge of the turf, to prevent their being crushed by passing vehicles. They were Killdeer, a species of plover uncommon in our neighborhood. He said this pair had bred in the park for three years. The park is upland meadow-land newly planted, with no water near, except a tiny brook, dry in the summer. It seemed a strange place to choose, and the utter publicity of the nest, where the eggs might be crushed by every passing wheel, seemed extraordinary.

The next day I was out betimes to see what had been the fate of the young bird, and to my great relief he was running about so fast that I did not attempt to pursue him again, but gave all my attention to the parents, and their ruses and maneuvers were fascinating to watch. Flying so close that I could almost touch her, the mother would throw herself on the ground two or three yards in advance, raise and flutter one wing quite helplessly, crying piteously. As I drew near, away she would fly, only to repeat the performance again and again, until she had fairly lured me to a good safe distance from her offspring, when up she rose and flew far away triumphantly.

When I returned to look for the young bird it had vanished. The coachman had had his eye on him only a moment before, and "he had just sunk into the ground, ma'am!" It required the sharp eye of the gardener, who came up at the moment, to detect the little thing. "There he is," he said, pointing downward; and at my feet, just where I should have trodden had I taken the next step, lay the bird, pressed quite flat into a hollow of the gravel. He had learned his mother's tricks and was playing dead! He allowed us to pick him up and examine him carefully, without a sign of life.

I could not go again to the park until July 3 when, to my delight, the gardener told me the birds were sitting on a second batch of eggs. I should never have found the "nest" if the man had not

KILLDEER
Photographed from nature

marked the spot with a wisp of straw on the turf near by. There were three eggs, laid on the bare gravel, matching it in their dark and light mottlings so as to be almost indistinguishable. The birds were now much bolder than in June, quite determined that I should not come near the eggs if they could frighten me off, and it occurred to me that they certainly came close enough to be photographed. So at 7 o'clock the next morning I was on the spot, accompanied by a friend with her camera—a 4 x 5 "Hawkeye." There was no adjacent tree or screen of any kind, but we easily coaxed one of the birds into coming within 'snapping' range. As we gradually approached, both birds grew quite frantic in their efforts to lure us away, drawing nearer and nearer. When we persistently stayed close, one drew off, but the other evidently made up its mind that no matter what the danger was, those eggs must not be allowed to grow cold. I felt very sorry

and apologetic as it fluttered, played wounded, cried, and yet constantly drew nearer to us and the nest. Finally it lighted on the ground, faced us boldly, made a little run toward the nest, and paused breathlessly—a splendid-looking creature as it stood there, head erect, eyes sparkling, every sense on the alert. The camera snapped! Up it rose but, finding no harm resulting, tried it again and yet again, till it made a final run, posed, and we made a final 'snap,' just as the bird stood over the eggs! We were sitting motionless on the gravel about eight feet from it. I was glad to leave the poor bird in peace after that. Meantime its more faint-hearted mate had never ventured near us. About fifty feet off it had gone on industriously and perfunctorily with its 'play acting,' dragging itself on the ground and crying piteously, but not really risking itself in the least. It was curious that I never once heard the *kill-deer* cry which the books say they give. They uttered a one-syllabled cry only; evidently an alarm note.

YOUNG BRONZED GRACKLE
Photographed from nature by R. W. Hegner, Decorah, Ia.

For Teachers and Students

The Study of Birds — Another Way

BY OLIVE THORNE MILLER

THERE are, of course, as many different ways of studying birds as there are objects to be gained by the study. The systematic ornithologist, the economic ornithologist, the sportsman, the cultivator, has each his own purpose and his own way of becoming familiar with our little brothers. The modern bird-lover, who studies neither for scientific nor economic purposes, but solely to make acquaintance with the tribes of the air, adopts the manner of none of these, but has, within the last few years, evolved a way of his own. It is most commonly by what are called Field Classes, admirably described in the June number of BIRD-LORE by Florence Merriam Bailey, who is herself a successful conductor of them.

The way I have evolved from my own experience in acquiring some knowledge of the birds (which I did by myself, without a guide or the help of even a color-key to identification), and later in helping others in the same delightful study, is somewhat different.

To begin with, I regard it as one of the most important uses of the study to lead the student to Nature herself; to acquaint him with the delights to be found in woods and fields, and the benefit to mind and heart, as well as to body, of close friendship with the great Mother. This can be accomplished only by each person alone. In a crowd, even with one companion, however congenial, it is impossible to get into a state of harmony with Nature that shall enable him to feel, with Whittier,

> "With mine your solemn spirit blends,
> And life no more hath separate ends;"

or, as Aldrich puts it:

> "A sudden tremor goes
> Into my veins, and makes me kith and kin
> To every wild-born thing that thrills and blooms."

Therefore I insist upon each person who is not satisfied with merely knowing birds by sight and song, but wants really to learn something of their natural lives, and their habits when not disturbed, making his studies in the field entirely alone. I prepare him for the work by an introductory course of instruction in house classes. My

aim is to make him acquainted with the most common birds of the vicinity, taking the familes in succession. By means of mounted specimens he makes a study of each species, as to size, form, color, and markings, at the same time receiving some account of manners and habits that shall ensure easy identification in the field. In this way a student learns to know familiarly about one hundred species of the common birds. This gives him a good start for individual work, and prevents the discouragement of facing a world of birds, without knowing one to begin with. I know from my own experience how disheartening this is, and I know, from the experience of others, how many are discouraged in the outset of this most delightful of studies by these preliminary difficulties.

So much has been said about my use of mounted specimens, in the face of my opposition to the killing of birds, that I should like here to define my position. In the first place, I have never objected to the killing of a moderate number of birds for *really* scientific purposes. What I oppose is the destruction for mere collections, for sport, for selling, for the unnecessary multiplication of skins and, above all, for milliners' use. In the second place, no bird was ever killed for me; nor did my purchase of those I have encourage the killing of more, because I bought them of a young man who collected them for himself and then, turning his attention to something else, wished to sell them.

Besides this, the collection I use has had an influence from Maine to Minnesota, interesting hundreds of students in the living bird, and inducing them to discountenance the destruction going on. No person — I may say confidently — ever went out from my classes with a gun, and I have had many boys in them. In fact, it is necessary only to show how much more interesting is the live bird than the poor dead body, to arouse their attention and take away their appetite for destruction. Therefore, even had my specimens been killed for me, I should consider that they had been useful enough, in saving the lives of thousands of their fellows and converting hundreds of boys from bird-murderers to bird-observers, to justify their sacrifice.

Having given my class this general knowledge, with the distinguishing marks of each family, and some acquaintance with its more prominent members, I take them out in small parties for outdoor observation, to teach them and to *show* them *how to observe.* Most useful, also, I regard a practical lesson in the use of the books, identification by the manuals; and another in taking note of and properly describing the points of a bird.

When a student has completed the course of ten talks which I

give a class, he is well grounded in the study. He can readily recognize a few birds, and knows where to look for them; he has learned how to identify and name any others without difficulty; how to make discoveries for himself; and, above all, he has learned the absorbing charm of the study of the individual bird, and the delight of a close acquaintance with nature.

The Bird Course at the Marine Biological Laboratory, Woods Holl, Mass., during the Summer of 1900

BY THOS. H. MONTGOMERY, Jr., Ph. D., Director of the Course

FOR the first time in its history there was started this year at the Marine Biological Laboratory a Nature-Study Course. The objects taken up during the six weeks of the course were cryptogamic and phanerogamic plants, the king crab, insects, and various marine invertebrates, the toad, and birds. It is concerning the bird-study alone that I have been asked to prepare a brief account for BIRD-LORE.

The field work consisted of three mornings spent in the woods and fields near the laboratory, and of one day's trip to the breeding grounds of Terns at Penikese. In this field work, as in that of the laboratory, the director was most ably assisted by Mr. Leon J. Cole and Mr. Herbert Coggins; and in the field the students could be separated into groups, taking slightly different routes. Further, the attempt was made to post the students of each group apart from one another and at favorable places, so that they became, to some extent, independent observers, and could see as many birds as possible with the least possible noise. The noise occasioned by a large party of students walking together through underbrush tends to frighten the birds most effectively, and this difficulty was obviated by the above mentioned method of "posting" the students, while the instructors visited in succession the various "posts." One mistake was made in placing the Bird Course at the beginning of August, when the birds sing but little and are in the low spirits of the moulting period. Another year this course will be placed at the beginning of the season.

As to the laboratory work, one day was spent on the gross anatomy of the Pigeon, and three afternoons on the study of bird-skins. On two of these afternoons the skins were studied for the purpose of identification, on the third for the correspondence of structure with habit. Two entire days were spent on the study of living Pigeons, under the direction of Professor Whitman, the head of the laboratory.

Using as material his splendid collection of living Pigeons, of which he has some forty species, from all parts of the world, Dr. Whitman explained the mode of determining the genesis of different structural characters, illustrating both modes of reasoning and modes of observation.

The lectures were on "Color and Environment" and "Nests and the Influences Governing their Site and Construction," by Mr. F. M. Chapman; on "Migration," by Dr. R. H. Wolcott; on "Moult" and "Geographical Distribution," by Mr. Witmer Stone; on "Maternal Instincts," by Dr. F. H. Herrick; on the "Relation of Structure to Environment," by Mr. Dearborn; and on "Anatomy" and Influences Produced by Food," by the director.

Thus it is seen that this course, as outlined, was essentially different, in being much less elementary, from probably all other bird-study courses of the year throughout the country. The students in it were, for the most part, teachers, and some of them not only experienced teachers but also good field ornithologists; and the aim of the course was to present suggestions as to lines of work, rather than to teach methods or to inculcate facts. From such a course a good student, one open to suggestion, might derive benefit, while one who simply expected to glean a series of facts would probably be disappointed.

One thing needs to be strongly emphasized, namely, that nature-study in the true sense; i. e., accurate and appreciative observation of the behavior of organisms in their natural environment, cannot be taught. The nature-student, that is to say, the naturalist, must be to a great extent self-made and independent in his work. A course in nature-study is, or should be, mainly suggestive, showing principally what are the more important and fruitful lines of work, and how this work is to be carried on; the remainder rests with the student. But there are many teachers who are obliged to teach these subjects, and yet have not the time nor opportunity to learn them sufficiently for themselves; for such, of course, some teaching of facts is essential. In a course for experienced teachers, however, the suggestion should have precedence over the presentation of the fact, and this has been attempted in our course of this year, with what success the students themselves can alone decide.

The Seventeenth Annual Congress of the American Ornithologist's Union will convene in Cambridge, Mass., on November 12, 1900. Public sessions for the presentation and discussion of papers will be held on November 13–15 from 11 to 1 and 2 to 5, doubtless in one of the lecture halls of Harvard University, and to these sessions all persons interested are invited.

For Young Observers

My Experience with a Red-headed Woodpecker

BY ALICK WETMORE (age, 13 years), North Freedom, Wis.

THE first time that I saw the subject of this sketch was on Sunday, October 8, 1899. As I was going along a ravine on that day, I heard a loud, tree-toad-like *ker-r-r-ruck* coming from the top of a tall dead stub. I looked up and soon saw that the owner of the voice was a young Red-headed Woodpecker. His (?) head was a dusky color. He would stick his head around the tree and, after giving the note, dodge back. I thought I would keep a sharp eye on him, and a little while afterward I was rewarded by seeing him get an acorn from a small oak. He seemed to be storing acorns up for winter in holes and crannies.

Once he lit on an oak limb that would not bear him, and it swung until he hung back down, but he got his acorn. While he was flying off, a little Junco seemed to think that he was trespassing and flew at him in a rage and made him get out of the way. I went to a stump nearby and got an acorn and found that it was whole. A few marks on the shell showed where he had hammered it into the crevice. He always seemed to go to the same tree for his acorns.

I laid down on the bank of the ravine close to the tree in the sun to watch him, but he was suspicious and would not come near at first. I was rather surprised to see that he could easily go down a tree backwards, lifting his tail and, after hopping down, falling back onto it. Everywhere he went, he expressed, in vigorous notes, his disgust at having me around.

The stub he liked best was very tall and had a crack in it near the top, and into this crack he hammered, with his shiny white bill, all the acorns that he possibly could. Some of them he cracked in two and then put them in the crack. One fragment he dropped as he lighted. He was after it quick as a flash, and chased it so near the ground that I thought he would dash himself onto it and be killed, but he turned up just before he reached it and flew off without the acorn.

In a cornfield a short distance away I found some nubbins for him. While I was looking for a place to put them up, I found a hole with sixteen acorns in it. He had put them there, for I could see the marks of his bill on them and around the edges of the hole

were a few small dark gray feathers. He had hidden the acorns by putting pieces of bark over them. I then went back to where he was and saw him drinking water, like a chicken, out of the brooklet. After returning from a short walk, I saw him carrying a large piece of bark to put over the acorns that I had uncovered. He started from the base of his stub, but as the bark was nearly as large as he was he could not carry it and was forced to drop it. As it was then nearly dark, I had to go home without learning where he stayed nights, and which, indeed, I never found out.

The next Sunday, the 16th of October, I did not have much time. When I reached the ravine he was catching insects. He was in the top of a tree and would fly out after the insects at they flew by but, growing tried of this, he went to the ground after an acorn. When I went to the hole in which I had found the sixteen acorns before, I now took out forty-five.

Sunday, November 19, I thought I would pay my Red-head a visit. As I did not see him for about fifteen minutes, I thought that some wandering hunter had killed him; but while looking around I heard a welcome *ker-r-r-ruck*, and there he was on his favorite stub. After taking a look at me, he flew down for a drink, with a loud note before he left the stub and shorter ones in between drinks to call attention, and well he might! His somber head had turned red since I had seen him last. The color was a little dark in places, but was fine all the same.

I next saw him on Sunday, November 26. I had gone to my usual place of study and was watching some Pine Siskins when he appeared. He was rather cross, for he chased a Tree Sparrow until it took refuge in a thick, bushy thorn-apple tree. Then he watched until it came out and took after it agan. I watched him sunning himself—for it was quite warm—and then went over to the hole in which I had found so many acorns. It was empty, and a number of shells were scattered around the foot of the tree.

From my note-book I see that the date of my next visit was Sunday, December 3. It was cold and snowing quite hard. I put on my overcoat and went down to see him. I may have wanted to see him, but he was evidently afraid of that big black thing in the fence-corner. He scolded and bobbed as though crazy till a pair of Blue Jays lighted in the tree. He was afraid of them and went around to the other side of the trunk and kept still until they left.

On Monday February 12, I saw him last. He was across the river from the ravine in a tree after acorns.

I know that he is still here and alive, and I intend to watch him in the spring when he sets up housekeeping.

Notes from Field and Study

Notes on the American Golden-Eye

The Golden-eye, or Whistler, is one of our most hardy Ducks, living here throughout the winter, sometimes in goodly numbers, passing most of the time feeding and swimming about the air-holes and sitting along the edges of the ice, where they preen their plumage. They resort to one place at night to roost, that is, if swimming about in the water may be called roosting. The Ducks for several miles around congregate at one air-hole The Whistlers are not alone in roosting here, as they are joined throughout the winter by the American Merganser, and, later, by the Black Duck. When coming in to roost, they fly in low over the water, and against the wind, in flocks of from two to twenty, the time of arrival being from about sundown until dark. When disturbed, they come in later. The Whistler, although capable of seeing well throughout the day, is handicapped by being unable to see well after dark. Rarely in daylight can a man boldly approach within two hundred yards, unless he resorts to strategy, yet at night, by noiselessly approaching in a boat, one may easily get within twenty-five yards.

It is interesting to watch this species during the courting season, which begins here in central New Brunswick late in March and continues throughout April. Should one flock, consisting of males, old and young, and females be swimming about, and observe others approaching on wing or on the water, the adult males, which are really beautiful birds, swim out in advance from each flock and, as they advance, will occasionally throw back the head until the crest rests on the back and the bill pointing about straight upward, utter a note sounding like *z-z-z-eet*. It is a very difficult sound to successfully imitate, but when once heard, and the source observed, it is not likely to be soon forgotten.

After this introduction, as it were, the members all unite in one flock and proceed to enjoy themselves in Duck fashion. The males also perform these antics after they have chosen a mate, and one may frequently see the male, when alone with the female, throw back his head and give vent to his feelings by uttering this pleasant note, which I have only heard in spring-time.

In May, or early in June, when the female is engaged in incubating her half dozen or more eggs, the male is ever on the lookout for enemies, and is very successful in alluring man from the vicinity of the nest, which is placed generally in a hollow stump, or, it may be, in an old Crow's nest.

Right well does the writer remember one day about the last of May, while walking along the tree-grown shore of an island, being accosted by an adult male, which flew near, making a piteous, whining sound, and alighting just about forty yards away, and so long as I followed in a certain direction all was right, but on returning to the place where he was first seen, he would again return and repeat the performance. After following him for some distance, he took to flight and disappeared.

This species breeds quite abundantly in the northern portion of this province, and the southward flight begins about the first of October.

The adults molt in July and August, and at this time are often quite unable to fly, owing to the loss of a great number of the flight feathers at one time.

These Ducks feed by diving and taking their food, which consists chiefly of small molluscs, from the bottoms of rivers and lakes, staying under water, generally, from one-half a minute to one minute and a half.—Willie H. Moore, *Scotch Lake, N. B.*

A Hummingbird Experiment

Our trumpet-creeper was full of blossoms, and a Hummingbird visited them many times a day, not to their advantage, for when the supply of nectar ran low she would slash the tube of the flower, near the calyx, insert her bill there, and usually the flower would fall when she flew away.

She would sit on a low spray for forty minutes at a time, sometimes preening her feathers, but quite as often merely enjoying life. Then she would make another dash at the flowers and feed with renewed energy.

One day I painted a trumpet-flower in water-colors, on a rather stiff piece of Whatman paper. I painted it as a real flower would look if slit down on one side and spread flat, and I colored both sides. Then I cut out the flower, bent it into shape, and fastened the edges together. Inside the tube I put a small, cylindrical bottle, and tied the flower to the trumpet-creeper in an almost normal position. The little bottle I filled with sugar-and-water, not too thick.

To my delight the Hummingbird visited that flower with no more hesitation than the real ones, and very soon preferred it, and I had to fill up the bottle at least twice a day.

One day I tried holding the flower in my hand, at a little distance from the creeper, and the Hummingbird flew to it as fearlessly as if I were a vine.

I left the painted flower on the trumpet-creeper until a heavy rain washed off most of the color, and then I removed it. There were very small insects in the sugar-and-water, but I am sure that the Hummingbird preferred the latter, for she ate much of it. I am not sure that she ate any of the insects.

The male seldom came to the trumpet-creeper, but once or twice he also fed from the painted flower. Most of his time was spent in slashing off the spurs of the nasturtiums to get at their nectar. We had hardly one perfect nasturtium flower all summer long, owing to his attacks.—Caroline G. Soule, *Brookline, Mass.*

An Interesting Record

While examining, recently, Audubon's manuscript journals at the home of his grand daughter, Miss Maria R. Audubon, whose volumes 'Audubon and His Journal' alone adequately present the life of the famous ornithologist, I encountered an interesting record which, through Miss Audubon's courtesy, I am permitted to publish.

In the latter part of March, 1837, Audubon, with his son John and friend Edward Harris, embarked from New Orleans on the revenue cutter 'Campbell' which had been placed at his service by the United States Government for a cruise along the west gulf coast to gather material for the 'Ornithological Biographies,' three volumes of which had at that time been published

On April 1, they anchored in the Southwest Pass of the Mississippi, and in his journal recording in detail the observations of that day, measurements of specimens collected, etc., there occurs the following interesting entry: "*Fuligula histrionica*. Harlequin Duck.—Saw a pair in perfect plumage. Quite a wonder."

As this species had already been treated by Audubon (Orn. Biog. III, 1835, 612) the fact that he had observed it in Louisiana does not appear to have been mentioned by him in his works, and the record, therefore, is evidently not alone the only known instance of the occurrence of the Harlequin Duck in that State, but in the Southern United States. As the species was apparently more common in Audubon's time than it is now, and bred further South than it does at present, it is not improbable that its distribution in winter was then more extended.—Frank M. Chapman, *American Museum of Natural History, New York City.*

Book News and Reviews

A Review of Economic Ornithology in the United States. By T. S. Palmer, Assistant Chief of Biological Survey. Reprint from Yearbook of Department of Agriculture For 1899. Pages 259–292, 3 Pll. 1 Fig.

After tracing, in the development of the Science of Ornithology in America, the beginnings and growth of the study of the economic value of birds, which lead to the establishment of the Division of Economic Ornithology and Mammalogy (now the Biological Survey) in the United States Department of Agriculture, Dr. Palmer reviews the work of this Division and then presents a broad general survey of the commercial value of birds to man. The use of birds and their eggs for food, the employment of their feathers for decorative purposes, and the gathering of bird-guano are here discussed in the light of numererous statistics of the utmost interest and importance.

Having thus reviewed the strictly economic status of birds, Dr. Palmer considers their destruction under bounty laws, their preservation under protective laws, and also the introduction of foreign birds.

It is impossible to go into details, but we may briefly say that no general paper known to us so clearly defines the bird's economic standing. It abounds in facts and figures and should be in the possession of every bird-student and especially of these advocates of bird-protection who would base their arguments on sound, logical ground.—F. M. C.

Abstract of the Proceedings of the Delaware Valley Ornithological Club of Philadelphia. No. III, 1898–1899. Published by the Club.

The Delaware Valley Ornithological Club meets at the Academy of Natural Sciences, in Philadelphia, on the first and third Thursdays of each month from October to May, inclusive. The average attendance during the two years covered by this report is shown by it to be about 20, and the character of the papers and notes presented, with the discussion thereof, prove the club to be a thoroughly active organization, doubtless the most active local bird club in this country.

In addition to abstracts of the reports of meetings, this publication contains the following papers presented in full: 'Birds of the Blizzard of 1899,' 'Migration Data on City Hall Tower' by William L. Baily, wherein are given the data connected with the 527 birds of 56 species which were killed by striking the tower from August 27, 1899 to October 31, 1899, and the 'Summer Birds of the Higher Parts of Sullivan and Wyoming Counties, Pa.' compiled by Witmer Stone, an extremely interesting list of 98 species of which no less than 13 are representative of the Canadian fauna.—F. M. C.

Check List of the Birds of Ontario and Catalogue of Birds in the Biological Section of the Museum, Department of Education, Toronto By C. W. Nash. 8vo, pages 58.

The author lists 302 species and subspecies of which all but nine are represented in the museum of the Department of Education The annotations are good as far as they go but, to our mind, seem too brief for the large area covered, and the addition of definite records of migration from several points in the Province would add greatly to the value of the list for students.—F. M. C.

Check List of New York Birds. By Marcus S. Farr. Bulletin of the New York State Museum, No. 33 Vol 7. April, 1900. 8vo. Pages 409 25 cents.

This is a nominal list of the birds which have been recorded from New York State, 380 in number, published in advance of a more detailed work, as a convenient check-list for students. For this purpose it is printed on only one side the page, blank pages being left for the entry of otes. This plan of preliminary publi-

cation is an excellent one, and should bring to Mr. Farr a large amount of additional information, making his final work proportionately valuable.—F. M. C

Book News

Houghton, Mifflin & Co. have brought out a school edition of Mrs. Miller's admirable 'The First Book of Birds' (reviewed in Bird-Lore, Vol. 1, p. 167), which is sold at the low price of 60 cents. This book, it seems to us, should exactly fill the wants of the kindergarten and primary teacher.

For a surprisingly frank confession of its author's pleasure, if not in the killing at least in the hitting of birds, we refer our readers to Mr. Maurice Thompson's 'In the Woods with the Bow,' published in 'The Century' for August last. For no other reason, apparently, than that they furnished a desirable target, such species as the Blue Grosbeak, Sparrow Hawk, Raven, Least Bittern, and others became marks for his skill. At one time, however, his enthusiasm as an archer evidently carried him beyond his own wide bounds and, on the departure of a companion, he wrote "I felt free to turn myself loose and make a fine stir in Arcadia. The wildest shooting mood was upon me, and whatever moved became a target for my shafts. I am afraid to make a full record of an hour's business."

We commend Mr. Thompson to the game wardens of the state in which he 'turned himself loose.'

If we may judge by a number of alleged photographs of birds "from nature," published recently in various magazines, their makers have adopted the eminently practical, if scarcely praiseworthy method, of placing a mounted bird among natural surroundings, where its picture might be made at leisure. Such photographs are surely "from nature"—far from it.

Readers of Mr. Richard Kearton's valuable works 'With Nature and a Camera' and 'Wild Life at Home' will be interested to learn that their author proposes to visit this country in October to remain several months on a lecture tour.

The September number of 'The Millinery Trade Review' protests against the appointment of naturalists as inspectors of animals and birds in connection with the enforcement of section 2 of the Lacey bill on the ground that as "zealots in their opposition to the wearing of bird-plumage, they are incompetent to serve in such capacity, as they are more than likely to be swerved by their prejudices. Nor are they competent to distinguish between natural and made-feather novelties after leaving the foreign factories."

It is unfortunate that the inspectors appointed will not have an opportunity to confound the milliners with a display of ornithological knowledge but, as a matter of fact, the section of the Lacey bill referred to, relates to living birds and not to their plumage.

The American Museum of Natural History now publishes a popular monthly magazine, entitled 'The American Museum Journal,' which is designed to keep the public informed of the progress of the Museum as shown both by exhibits and publications. It may be obtained from Dr. Anthony Woodward, Librarian of the Museum, for ten cents a copy.

The notices of Professor Jones' 'Warblers' Songs' and Mr. Burns' 'Monograph on the Flicker,' published in Bird-Lore for August, have brought us numerous inquiries in regard to the Wilson bulletin, in which they appeared. This excellent publication is issued quarterly at Oberlin, Ohio, under the editorship of Prof. Lynds Jones, from whom information in regard to subscriptions, back numbers, etc., may be obtained.

Houghton, Mifflin & Co., announce for early publication 'The Woodpeckers' by Fanny Hardy Eckstorm. Doubtless the day is not distant when we shall have special monographs treating at greater length than is possible in a general work, each family of North American birds.

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Devoted to the Study and Protection of Birds

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

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Bird-Lore's Motto:

A Bird in the Bush is Worth Two in the Hand.

The A. O. U. and the Audubon Societies

The proposal to hold a conference of representatives of the Audubon societies in Cambridge during the Seventeenth Annual Congress of the American Ornithologists' Union, which convenes in that city on November 12, 1900, is admirable, not alone through its promise of the accomplishment of practical and desirable results in matters concerning the work of the Audubon societies, but also because it will emphasize the close relation which exists between the societies and the Union. With the more isolated members of both organizations it is evident that this affiliation is not suspected; indeed, the Audubonist whose aims are limited to regulating the millinery of her neighbor finds, to put it mildly, nothing to commend in the most legitimate efforts of the ornithologist who, with equally narrow vision, is ofttimes led to make his critic stand as a type for the societies she so misrepresents.

An associate member of the Union, living in California, voices this prejudice in a recent number of 'The Condor,' wherein he "registers a kick against being placed in the same class [of A. O. U. membership] with Audubonists and fad protectionists." His definition of the objectionable Audubonist as a woman who "declines to wear mangled bird-remains on her hat or as trimming for her clothing," very clearly exposes his ignorance of the scope of the work of the Audubon societies, an ignorance which we have found to prevail most widely in regions where the Audubon societies are least active.

Doubtless there are "fad protectionists" in the ranks of the Audubon societies, just as there are fad collectors of birds' skins and eggs among the members of the Union; but fortunately both are of too little importance to affect the harmony born of common interests which does exist between the Audubon societies and the A. O. U.

The original Audubon society was organized by the Union, and at the present time the presidents of three of the leading societies are prominent members of the A. O. U., while but few of the larger societies are without representatives of the Union on their executive boards who, be it added, are not mere figure-heads, but active workers. As further evidence of the community of interests of the two organizations, it may be said that the Union's Committee on the Protection of North American Birds is, in effect, an Audubon Society.

It is not alone the necessity for bird-protection which prompts these members of the A. O. U. to join forces with the Audubon societies, but because they recognize the enormous influence which these societies can and do exert on the advance of ornithological interests in this country. Indeed, we assert without hesitation that the Audubon societies, with their 40,000 or more members, popular lecture courses, circulating libraries, school bird-charts, and many educational schemes, are a more potent force in shaping the future of American ornithology than the American Ornithologists' Union itself; and this not because their members decline "to wear mangled bird-remains," but because they

realize the incalculable importance of education, and are making every effort to secure for the youth of this country opportunities to learn something of the beauty and value of bird-life which the previous generation lacked.

We would make no comparison between the Audubon Societies and the Union which would in any way reflect on the work of either. Both have their place, and when their relations are properly understood it will be seen that they stand to each other as preparatory school to college. It is the province of the Audubon societies to arouse interest in the study of birds, in short, to make ornithologists; it is the province of the A. O. U. to enroll them in its membership after the school-day period has passed, and sustain their interest through the stimulation which comes from association with others having kindred tastes.

The ornithologist who counts success through the number of his 'takes' and 'finds' should understand that we are reaching a stage in the study of North American birds where the field-glass is of more importance than the gun, where observations are more needed than collections. It is this doctrine which members of the A. O. U. themselves are trying to inculcate in the minds of budding ornithologists (witness their circular issued by the Pennsylvania Audubon Society and published in Bird-Lore for August, 1899), and to close the ranks of the Union to what, in effect, are their own pupils, would be obviously too inconsistent to be worthy of a moment's consideration.

Robbed of its misconception of the aims of the Audubonists, and we confess to a certain sympathy with the plea of the writer of the letter we have quoted from for an additional class of members in the A. O. U. The suggestion to increase the limit of active membership from fifty to sixty or seventy-five, put forth by another correspondent of 'The Condor' seems to us to be unwarranted by existing conditions. The writer mentioned thinks that California should be better represented on the active list, but we find that it already possesses four active members, or more than any other state except Massachusetts and New York and the District of Columbia. However, he admits that among the ninety members of the Cooper Ornithological Club of California there are only "two, possibly three, who would fill the requirements" demanded of candidates for active membership. To this number average current opinion would add probably four or five candidates from the East, making a total number of eight possible claimants for the four vacancies in the active list, certainly not a too severe competition for "the highest honor to which any American Ornithologist, can aspire."

The proposal to make two classes of associate members, on the contrary, has much in its favor. When the Union was organized there was far less interest in the study of birds than at present, and the list of associate members was largely composed of amateur ornithologists, any one of whom might eventually become a candidate for active membership. But with the greatly increased popularity of ornithology there has arisen a class of students who, while they do not aspire to the rank of active membership, are still desirous of being connected with the Union, and between them and the associates, whose ambition it is to become active members, a distinction might, with perfect justice, be made by the creation of a class of senior associates limited to one hundred in number.

But, in any event, let us regard with equal fairness the technical ornithologist absorbed in his minute study of specimens and his disentanglements of nomenclatural snarls, and the ardent bird-protectionist who perhaps can not name a dozen birds correctly. Both are sincere, both are necessary, and a mutual understanding of each other's aims will, we are sure, lead to mutual respect.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird-Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

Notes

The ever-important question of how to retain the interest of those already banded together by membership in the Audubon Societies is still before us, and seemingly as far from being settled as ever. As yet there has been no general meeting of workers in this branch of bird-protection, no interchange of personally related experience. I am glad to be able to state definitely that the long-talked-of conference is to be held this fall, and I urge as large a response as possible to the hospitable invitation of the Audubon Society of the state of Massachusetts.

It is quite fitting that this Society should be the first to act as host, as it has been the pioneer of all that is best in the work—at once progressive and conservative.

Some time ago Professor M. A. Willcox made the suggestion that a 'White-List' of milliners be obtained, if possible, in every city and large town; this list to be composed of the names of those who would be willing to keep on hand some tasteful hats and bonnets from which all but Ostrich plumes should be absent or, in short, to make it easy for customers to obtain 'Audubonnets' if they so desire

This is a praiseworthy experiment, and I should like every secretary to endeavor to send a list of names by November 1. Personally, I think it is handling the matter by the wrong end. Women should refrain from demanding feathers rather than throw the responsibility upon the milliner, who *must* keep well in the front with novelties in the push of trade-rivalry or go to the wall.

Why should we expect the milliner with a living at stake to be more moral than the woman who has sufficient means to buy her headgear ready made?

One milliner writes: "I am in sympathy with the Audubon movement, and I think it is a great pity that the dear little birds should be sacrificed for millinery trimming, but as long as my patrons demand them I feel it right to use them. Stop the demand, and the milliners and dealers will soon forget about them. * * * It is my plan to have a great many hats and bonnets without the plumage of wild birds, and if I could get sufficient support from members of the society, I would do away with them altogether."

This, from a well-known Boston milliner, drives the nail home, and is a clear expression of the sentiments of the majority of the intelligent trade.

I wish to call particular attention to Bird-chart No. II, issued by the Massachusetts Society. It is fully the equal of No. I, and the two, picturing as they do fifty-two of our common birds, with accompanying descriptive text by Ralph Hoffmann, are a practical answer to the daily question, "How can I instruct my children about the birds? We do not live near a museum."

The Rhode Island Society has issued a very striking poster printed on heavy card, bearing a picture of a Tern, and urging women to refrain from wearing the plumage of both Gulls and Terns. Copies may be purchased from the secretary.

The schools are again in session, and the season for teaching via the book opens as the season of observation for the many draws to a close. This is the time that

the circulating libraries of natural history should be sent upon their journeys to the remote school-districts to bring a breath of hope and summer to those of whom winter makes 'shut-ins.' These libraries should not be wholly about birds, but comprise books on other native animals and plants as well, the better to show the interdependence of all nature.—M. O. W.

The Audubon Conference

Following the suggestion given in Bird-Lore of a recent date that a conference of Audubon Societies be held in Cambridge, Mass., in connection with the meeting of the A. O. U. November 12–14, the Massachusetts Audubon Society announces that it has sent invitations to the secretaries of the various state societies asking them to send delegates to such a conference. The rapid increase in the number of Audubon Societies, and the many methods of working for bird-protection which have been in use by them, suggest that a comparison of these methods, and a mutual interchange of opinions on this subject would be of benefit to all. There are now twenty-two of these societies and it is earnestly desired that each will send at least three delegates to this conference. The Massachusetts Audubon Society will cordially welcome the delegates, and will make arrangements for their convenience and comfort; they also herewith extend an earnest invitation to all Audubon members and bird-lovers to attend this meeting. The committee are perfecting arrangements to make this first convention of Audubon Societies a pleasant and profitable occasion, when "members may meet face to face and feel the fellowship that comes from the spoken word."

For details of the conference and suggestions regarding the programme, address Harriet E. Richards, Secretary, care of Boston Society of Natural History.

The Milliners' 'White-List'

We have received the following names of milliners who are willing to make a specialty of bonnets trimmed without wild birds' feathers:

BOSTON, MASS.—R. H. Sterns & Co., Cor. Temple Place and Tremont St.; Caroline, 486 Boylston St.; Céleste, 415 Boylston St.

WORCESTER, MASS.—Edith A. Cushing, 1 Chatham St.; Mrs. Harriet A. Green, 19 High St.; Mrs. Ida S. Richards, 165 Pleasant St.

MILLBURY, MASS.—Mrs. J. M. Cushing-Johnson, 271 Main St.

Reports of Societies

RHODE ISLAND SOCIETY

The Audubon Society, in conjunction with the Game Association of this state, succeeded last year in securing the passage of a law creating a Bird Commission of five members, authorized to enforce the statutes relating to birds. This year, through the instrumentality of the same societies, and with the help of the Bird Commissioners, the Rhode Island bird laws have been greatly improved and now compare favorably with those of any state. The close season for game birds has been lengthened, and all other birds are protected during the entire year, with the exception of English Sparrow, Hawks, Owls, Crows, and Crow Blackbirds, which "may be killed at any time by any person upon his own land." This last clause was a necessary concession to the views of some of the rural legislators, and we can only hope that in the near future it will be amended.

One section of the law imposed a fine of $20 for every Woodcock, Quail, or Ruffed Grouse sent out of the state The same penalty is imposed for disturbing or destroying the nest or eggs of any wild bird without a license from some scientific institution.

In order to give publicity to the new laws, the Audubon Society has had abstracts of the same printed upon cloth and posted throughout the state.

As a novel method of appealing to the public, this Society has recently made

use of an advertising card in the street cars. One half the cards is devoted to a beautiful half-tone picture of a Wilson's Tern, and the other half to an appeal to all "Fair-minded Women."

It is hoped that other societies will make use of these cards, which are suitable for posting in any public place, and which may be obtained from the undersigned at cost.

In order to encourage the study of birds in the school, four prizes of cameras and opera glasses were recently offered by the Audubon Society and the Humane Education Committee of the S. P. C. A. for the best essay upon various subjects relating to birds. The graduating classes in the fifteen grammar schools of Providence were selected by the superintendent of schools, Dr. H. S. Tarbell, for the competition. A month of preparation was allowed, but the subjects were not given out until the hour appointed for writing the essay.

About 150 of the best papers were sent to a committee of this Society, who examined them and awarded the prizes. The work done by the pupils showed an amount of interest that was surprising and encouraging, and the Committee decided to make honorable mention of ten papers for which they awarded subscrip tions to a monthly magazine issued by one of the Humane Societies.

The officers of the Audubon Society feel that a busy season has resulted in a distinct advance for the cause of the birds.

ANNIE M. GRANT, *Secretary.*

CONNECTICUT SOCIETY

The Annual Report of the Audubon Society of the State of Connecticut has been issued in pamphlet form, and will be sent to the officers of other societies upon application to the secretary. This society is in a flourishing condition, the special feature of the past year, in addition to the free illustrated lectures, being the purchase of 10 Natural History libraries of 10 books each to be circulated in the public schools through the kind coöperation of Mr. C. D. Hine, secretary of the State Board of Education.

The following letter is a part of that sent out with each library:

Dear Madam:

You will receive by express an Audubon Library. These books deal with natural history and particularly with birds, the object being to encourage the reading of all good books and especially to arouse interest in the nature and habits of common birds and the benefits which these birds render. The Audubon Society will be glad to receive reports from the teachers, giving an account of the use of the books, stating which are the most popular and entertaining, in general the effect of such a library in school. The library may be kept until the end of the term. It comes to you free of expense, and when returned the express will be paid at this end.

Yours truly,

CONNECTICUT BOARD OF EDUCATION.

All of the libraries have been placed with the public-school teachers and several have written to show their appreciation and enjoyment of the books. We consider this work one of the most important we have accomplished, and hope to extend it considerably during the coming year, as there is already a demand for more books.

To give greater identity each library bears the name of the American naturalist whose books are most prominent in it, or a title otherwise indicative of its contents. The Ernest Seton-Thompson Library, The John Burroughs Library, The Olive Thorne Miller Library, The Teachers' Library, The Gardencraft Library, etc.

The Lecture Committee reports as follows:

"Last summer the two lectures illustrated by slides which the Audubon Society had circulated during the previous year were re-used, and to the Farmers' Lecture a number of new slides were added. Also a new lecture was written and slides prepared by Mrs. Wright, the president of the society. This lecture was intended for little children, the subject being 'The

Adventures of a Robin.' During the fall months there was some demand for the lectures, but with spring came more applications, and from then till now they have been in almost constant use. The committee has made an effort to have the Farmers' Lecture used in the granges throughout the state, and though a number have had them, still not so many as the number of granges would warrant. The schools have responded largely to notices sent to them in regard to the lectures, and for Bird and Arbor Day there were twenty applications for them. Lecture No. II, 'Birds about Home,' has been used fifty-two times, while the Farmer's Lecture has been used fifteen times, and Lecture No. III sixteen times, making in all eighty-three times. Success has been obtained by a local secretary keeping a lecture a number of weeks, and taking it to the different schools in the neighborhood. The children were much interested, and a number joined the society as a result. A number of most appreciative letters have been received, and there seems no doubt that the lectures have done great good in arousing interest in the cause for which the Audubon Society is working—the protection of birds.''

The Audubon Societies at the General Federation of Women's Clubs

Through the enterprise of the Wisconsin Society, Miss Mira Lloyd Dock was secured to speak upon Bird-Protection June 8, at the General Federation of Women's Clubs then in session in Milwaukee. Miss Dock took 'The Quality of Mercy' as her text, and through it appealed to a representative audience of women from every part of the country. She handled the subject in a way that showed a thoroughly trained and logical mind. The work of the Audubon Societies was presented not as an isolated affair, not as a fad, but in its relation to all the other movements of the age that make for righteousness, in the way of lessening the amount of suffering among men and animals.

A leaflet containing a list of the Societies for Bird-Protection at home and abroad, and various notes of interest was distributed at the meeting, which cannot fail of doing widespread good. The State Societies contributing toward the expenses of this lecture were New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Illinois, Wisconsin and Ohio.

A Welcome Superstition

Mr. Ernest Seton-Thompson writes us from abroad of a growing superstition in Paris against the wearing of 'aigrettes,' which, with characteristic originality, he voices in rhyme, as follows:

> The Dames of France no longer wear
> The plumes they used to prize:
> They find that Aigrettes in the hair
> Brings crows' feet in the eyes.
>
> E. S-T.

A Remarkable Bonnet

The observing ornithologist nowadays often make interesting discoveries in the befeathered monstrosities with which some women no doubt imagine themselves becomingly adorned; but of the many which have claimed our attention, in none perhaps was the plumage of different birds so confusingly intermingled as in a hat seen not long since on an Eighth Avenue, New York City, car.

It contained a Black-cock's tail, Dove's and Whip-poor-will's wings, Grebe's breast, Paradise Bird's plumes, a bunch of Aigrettes, and a Hummingbird!—F. M. C.

Death of Miss Seixas.

We regret to announce the death of Miss Cecile Seixas, secretary of the Texas Audubon Society, who, with her mother and two sisters, perished in the Galveston hurricane.

FERRUGINOUS ROUGH-LEGGED HAWK
Photographed from life by H. W. Nash, Pueblo, Colo.

Bird-Lore

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DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. II DECEMBER, 1900 No. 6

Photographing Ptarmigan

BY E. R. WARREN, Crested Butte, Colo.

With photographs from nature by the author*

OUR White-tailed Ptarmigan, or 'Mountain Quail,' as it is commonly called in this state, is a bird of such alpine habitat that but few become acquainted with it, especially in the summer season, when it lives at timber-line and higher. In the winter it is somewhat better known, for it then descends to the valleys, driven down by the storms and deep snows, although, as far as I know, never below or out of the snow. At this time they are very noticeable, that is, if one runs across them, for they are pure white, excepting bills and eyes, which are black. At all seasons, so far as I have observed, unless much persecuted, they are fearless of man, and will allow one to approach very closely, so closely that I have actually touched them.

The photographs from which the accompanying illustrations were made were taken in the vicinity of Crested Butte, Gunnison county, Colorado. The first of the birds in the summer plumage was taken in 1899 at an elevation of over 11,000 feet, nearly but not quite timber-line, and in one of our high mountain basins. The birds were in the habit of coming daily, at about noon, to a mining tunnel, for the sake of drinking from a small stream of water which flowed from the tunnel, probably the nearest water they could find. As long as there is snow on the mountains the birds do not go for water. I have seen them eat snow in the summer as well as in winter. There

*Mr. Warren's beautiful pictures illustrate perhaps more forcibly than any photographs BIRD-LORE has published the educational value of the camera in the study of birds in nature. Few ornithologists are privileged to see Ptarmigan in their haunts, and, with the exception of the Scottish species, they are never, we believe, confined in zoölogical gardens. But here we have a series of photographs, which not only gives an excellent idea of the appearance of these birds in life, but graphically demonstrates the importance of their marked seasonal changes in plumage, which are technically described by Dr. Dwight in the succeeding article.

were old and young birds; on my first trip I found a hen with two young, and on my second a hen with four young, and another hen with one chicken appeared soon after. The latter, I think, were those seen the first trip, but one had been killed by something, very likely a Red-tailed Hawk I saw flying about. This Hawk was the cause of the picture called "Watching the Hawk," taken the first trip. These two young birds were very tame, and after being followed about some time had settled down among the grass and stones on the hillside. I had put the camera down about four feet away

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"WATCHING THE HAWK"

from them, and had the stop at sixty-four and shutter for one-half second exposure. The old bird was about twenty feet away. The chicks were in a nice position, the slide was out of the plate-holder, and I was just at the point of squeezing the bulb to make the exposure. The hen began clucking very excitedly as if alarmed, and those youngsters flattened themselves out among the rocks and grass so that, close as I was to them, I could hardly distinguish them from their surroundings. As for taking their pictures then, it would have been impossible. The camera would have shot over them. I looked to see the cause of the trouble and saw the Hawk sailing along close to the ground. After he had passed, the birds raised themselves up

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PTARMIGAN IN NOVEMBER JUST AFTER COMPLETING WINTER PLUMAGE

The conspicuousness of these birds in white winter plumage when seen against a dark background is an eloquent argument for the necessity of their seasonal changes in plumage, the value of which is strikingly illustrated by the photographs on the preceding page and below, where birds in summer and winter plumages respectively are shown with appropriate seasonal surroundings.

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PTARMIGAN IN WINTER PLUMAGE

and stretched out their necks, looking after him—then I took the picture.

After quenching their thirst at the tunnel the birds would start up the hill, feeding as they went and acting much like a flock of domestic fowls. They fed on grass and weed seeds, with an occasional fly or other insect, which the young would often chase.

The picture of the two birds in winter plumage was taken in November, 1899, near the summit of Mt. Emmons, just across from Redwell Basin, where I made my summer pictures. A heavy snow had fallen in October, but after that the weather had settled and

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PTARMIGAN IN SPRING CHANGING TO SUMMER PLUMAGE

melted the snow so that it was not bad traveling; in fact, even to the very top of the mountain there were bare spots. Here I found these two Ptarmigan, young birds, I think, as they did not appear to be quite full grown, and possibly some of those I had photographed two months before. Like the others they were tame, and I could get as close as I wished to them, the bare ground giving a contrasting background for their white winter plumage. The picture of the bird in winter plumage, on the snow, with part of a man on skis near by, was taken in the valley of East River, about four miles east of Crested Butte, in March, 1900. Here, among the willows in the river bottom, were quite a good many Ptarmigan, some of which were quite shy. Snowshoes, ten-foot Norwegians, or skis, were a

necessity here, for the snow was three to five feet deep and there were no roads or trails. The birds appeared to be feeding on the willow buds. Judging from the tracks we saw, they must be much harassed by coyotes, for we observed the latter's tracks running in every direction from one willow clump to another, as if beating the ground for game.

In May, 1900, I was camped on the south slope of Mt. Emmons, working a mining claim. The snow still lay on the higher slopes, but in the morning would be hard so that one could easily walk on it. One morning I walked up toward the summit, near where I secured the winter plumage pictures, and found one bird, in the changing plumage. Its head and neck were thickly spotted with black and brown, while there were numerous brown feathers in the back. Below it was still white. As usual, it was tame and I could observe it closely. Where I found it the ground was partly bare and partly covered with snow. On the bare spots it found grass and was nipping off the heads of this, and also would pick industriously at times into bunches of moss, getting the seeds from them.

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ADULT FEMALE PTARMIGAN IN SUMMER PLUMAGE

On July 11, I had my greatest piece of luck. I had gone out to look for Ptarmigan, hoping to find a nest with eggs, and was coming back along the crest of a ridge when I saw a little chick running a few feet in front of me, and, looking down, I saw the old bird and more chicks almost beside me. There were five young altogether, apparently only a few days old, as they were downy, and the quills in the wings were only just beginning to show. With this family I had a most interesting time. It was no trouble to get pictures of the old bird, for she would stand still and allow me to put the camera down on the ground two or three feet away, use the focusing cloth and focus, then change the shutter from time to instantaneous exposures, put in the plate-holder and make the exposures. I secured pictures of her thus when she was covering her whole family, for whenever she stopped the chicks would nestle beneath her,

when I might have captured the whole family by putting my hat over them. But they were most independent little fellows and, chirping, would run about wherever they pleased. It was wonderful to see them run over the rough, rocky ground where I found them. This was at an elevation of about 12,000 feet and on a ridge the north side of which breaks off very abruptly, in many places in perpendicular cliffs. Once I saw a young one fall fully seven feet down among the rocks, rolling over and over. It did not seem to be at all hurt or frightened. When it stopped falling it at once started back up the hill and in a minute or two was with its mother; she had seen the fall, but had manifested no alarm. The birds were feeding on the seeds of such grass and plants as grow at that altitude, a species of moss being, seemingly, an especial favorite with them.

Finally, placing the camera where I had to lie down at full length to focus, and where, if I had rolled to the left a little ways, I would have fallen a hundred feet or more down the mountain, I put in the plate-holder, drew the slide, then, by threatening the bird, holding my hand over her head, I induced her to rise; the youngsters came out from under, and, watching the right time, I caught two of them in a picture.

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FEMALE PTARMIGAN AND CHICKS

How Ptarmigans Molt*

BY JONATHAN DWIGHT, Jr., M. D.

THESE widely distributed, circumpolar birds are a pleasing illustration of the principle of protective coloration, even their method of molt varying so from that of the other Grouse as to adapt their plumages more perfectly to their surroundings. In winter we find them in snow-white dress, the Willow and Rock Ptarmigans (*Lagopus lagopus* and *Lagopus rupestris*) and their allies having jet-black tails which are nearly concealed by the white coverts (Fig. *c*). The White-tailed Ptarmigan (*Lagopus leucurus*), peculiar to the alpine tops of the Rocky Mountains, is absolutely white. During the long Arctic winter the birds so blend with their snowy environment as to be well-nigh invisible to their enemies, but with the coming of the brief summer their white dress is no longer protective, as they wander over the brown vegetation or gray rocks laid bare by the sun. Now they must sit upon their eggs day after day in some warm spot and presently care for their brood in latitudes where often in midsummer snow-drifts alternate with flowers. And so it is that a prenuptial molt quickly covers the upper parts of their bodies and their breasts with brownish or dusky mottled feathers that hide the white wings and abdomen (Fig *a*). This molt occurs, usually in May, with the melting of the snow, which takes place earlier or later according to latitude.

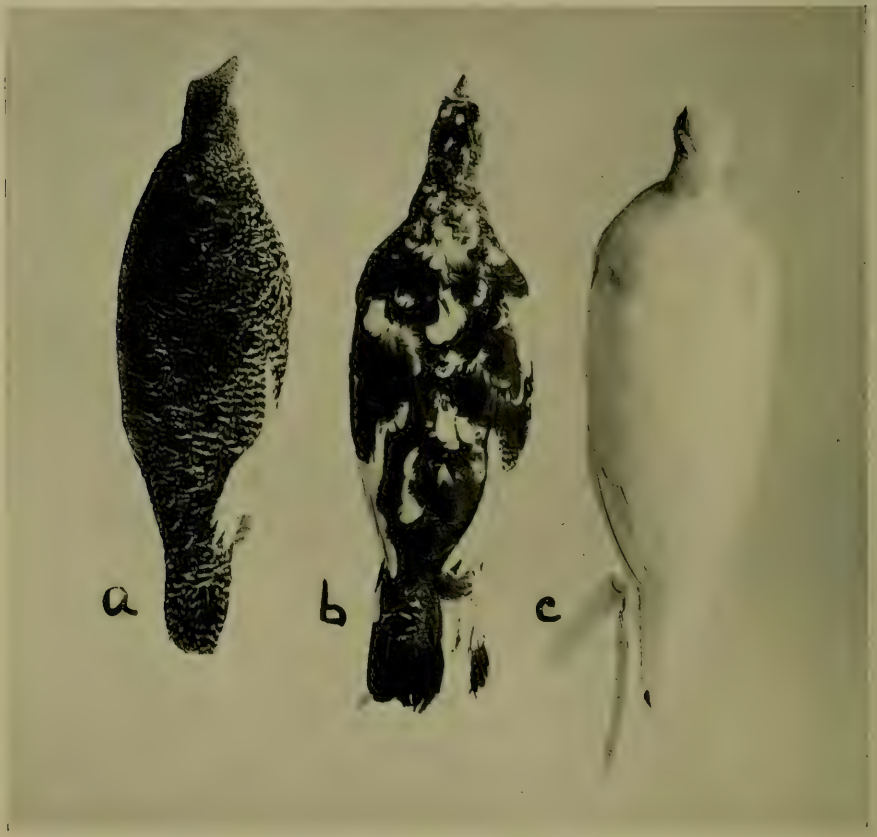
After the duties of incubation are over, early in July, the postnuptial molt, common to all species of birds, begins and it is completed in about six weeks. The white wings and black tails (white in *L. leucurus*) are renewed and nearly all of the lower surface becomes white, while upon the head, breast and back reddish or dusky feathers appear, with mottling which is less bold than the nuptial and often reduced to a mere sprinkling of darker color. Females, previously distinguishable by coarser mottling, also don this dress, the preliminary winter plumage. A supplementary postnuptial molt now follows so quickly that one molt is often not completed before the other begins. The latter is partial, but it involves those areas upon which dark feathers have grown, they being now replaced by white ones. The overlapping of the molts is shown by Fig. *b*, where feathers of three stages of plumage may be seen, the parti-colored effect being due chiefly to the outbreak of molt at various definite points from which new feather growth, as in other species, regularly radiates along definite paths.

The purpose of the preliminary plumage, apparently, is to tide the birds over the autumn or, rather, the brief period that in Arctic regions

*See also an important paper on this subject by Dr. Dwight in 'The Auk' for April, 1900.

corresponds to it. The transition to winter dress is less rapid, however, than the abrupt change from winter to summer, and the parti-colored plumage is most protective when the face of the country is partly brown and partly powdered white by the snow-squalls that herald the approach of winter.

We have now followed the adult Ptarmigans in their molts throughout the year, and will find that they differ from other members of the



SEASONAL PLUMAGES OF PTARMIGAN
From specimens in the American Museum of Natural History.
a, summer. *b*, postnuptial or autumn *c*, winter.

Grouse family only in their more extensive prenuptial molt and in their peculiar supplementary postnuptial molt. Let us now see what happens to the young birds. The chicks hatching in July or earlier are thickly covered with down. The juvenal plumage which follows the down is not unlike the nuptial dress of the adults, but the wing quills (except the two outer primaries, which are white) and the tail are

gray. Shortly, a complete postjuvenal molt occurs and a preliminary winter plumage is assumed, which is nearly identical with that of the adults. From this stage on, the sequence of molts and plumages is the same in adults and young birds, both assuming white plumages in winter and mottled brown ones in summer, followed by the intermediate reddish stage, which is grayish or dusky in some species.

The minor details of the three molts of adults and of the two peculiar to young birds are extremely interesting, but space forbids our going deeper into them. Enough, however, has been said to show not only how the Ptarmigans molt, but why they molt. The plumage changes seem to be necessitated by the conditions under which they live.

Winter Pensioners

BY BRADFORD TORREY

With photographs from nature

OUR northern winter is a lean time, ornithologically, though it brings us some choice birds of its own, and is not without many alleviations. When the Redpolls come in crowds and the White-winged Crossbills in good numbers, both of which things happened last year, the world is not half so bad with us as it might be. Still, winter is winter, a season to be tided over rather than doted upon, and anything which helps to make the time pass agreeably is matter for thankfulness. So I am asked to write something about the habit we are in at our house of feeding birds in cold weather, and thus keeping them under the windows. Really we have done nothing peculiar, nor has our success been beyond that of many of our neighbors; but such as it is, the work has given us much enjoyment, and the readers of BIRD-LORE are welcome to the story.

Our method is to put out pieces of raw suet, mostly the trimmings of beefsteak. These we attach to branches of trees and to the veranda trellis, taking pains, of course, to have them beyond the cat's reach (that the birds may feed safely) and at the same time well disposed for our own convenience as spectators. For myself, in addition, I generally nail pieces of the bait upon one or two of the outer sills of my study windows. I like, as I sit reading or writing, to hear now and then a Nuthatch or a Chickadee hammering just outside the pane. Often I rise to have a look at the visitor. There is nothing but the glass between us, and I can stand near enough to see his beady eyes, and, so to speak, the expression

of his face. Sometimes two birds are there at once, one waiting for the other. Sometimes they have a bit of set-to. Then, certainly, they are not without facial expression.

Once in a while, in severe weather, I have sprinkled crumbs (sweet or fatty crumbs are best—say bits of doughnut) on the inside ledge, and then, with the window raised a few inches, have awaited

TORREY'S BRANCH ESTABLISHMENT

callers. If the weather is bad enough they are not long in coming. A Chickadee alights on the outer sill, notices the open window, scolds a little (the thing looks like a trap — at all events it is something new, and birds are conservative), catches sight of the crumbs (well now, that's another story), ceases his *dee, dee, dee*, and the next minute hops inside.

The crumbs prove to be appetizing, and by the time he has swallowed a few of them he seems to forget how he came in, and instead of backing out, as a reasonable being like a Chickadee might be expected to do, he flies to another light of the bay window. Then, lest he should injure himself, I must get up and catch him and show him to the door. By the time I have done this two or three times within half an hour I begin to find it an interruption to other work, and put down the window. White-breasted Nuthatches and Downies come often to the outer sill, but only the Chickadees ever venture inside.

These three are our daily pensioners. If they are all in the tree together, as they very often are, they take precedence at the larder according to their size. No Nuthatch presumes to hurry a Woodpecker, and no Chickadee ever thinks of disturbing a Nuthatch. He

may fret audibly, calling the other fellow greedy, for aught I know, and asking him if he wants the earth; but he maintains a respectful distance. Birds, like wild things in general, have a natural reverence for size and weight.

The Chickadees are much the most numerous with us, but taking the year together the Woodpeckers are the most constant. My notes record them as present in the middle of October, 1899, and now, in the middle of October, 1900, they are still in daily attendance. Perhaps there were a few weeks of midsummer when they stayed away, but I think not. One pair built a nest somewhere in the neighborhood and depended on us largely for supplies, much to their convenience and our pleasure. As soon as the red-capped young ones were able to fly the parents brought them to the tree and fed them with the suet (it was a wonder how much of it they could eat), till they were old enough to help themselves. And they act, old and young alike, as if they owned the place. If a grocer's wagon happens to stop under the tree they wax

DOWNY WOODPECKER
Bromide enlargement × 3.

indignant, and remain so till it drives away. Even the black cat, Satan, has come to acknowledge their rights in the case, and no longer so much as thinks of them as possible game.

I have spoken, I see, as if these three species were all; but, not to mention the Blue Jays, whose continual visits are rather ineffectively frowned upon (they carry off too much at once), we had last winter, for

all the latter half of it, a pair of Red-bellied Nuthatches. They dined with us daily (pretty creatures they are) and stayed so late in the spring that I began to hope the handy food supply would induce them to tarry for the summer. They were mates, I think. At any rate, they preferred to eat from the same bit of fat, one on each side, in great contrast with all the rest of our company. Frequently, too, a Brown Creeper would be seen hitching up the trunk or over the larger limbs. He likes pleasant society, though he has little to say, and perhaps found scraps of suet in the crevices of the bark, where the Chickadees, who are given to this kind of providence, may have packed it in store. Somewhat less frequently a Gold-crest would come with the others, fluttering amid the branches like a sprite. One bird draws another, especially in hard times. And so it happened that our tree, or rather trees,— an elm and a maple,— were something like an aviary the whole winter through. It was worth more than all the trouble which the experiment cost us to lie in bed before sunrise, with the mercury below zero, and hear a Chickadee just outside singing as sweetly as any Thrush could sing in June. If he had been trying to thank us, he could not have done it more gracefully.

The worse the weather, the better we enjoyed the birds' society; and the better, in general, they seemed to appreciate our efforts on their behalf. It was noticeable, however, that Chickadees were with us comparatively little during high, cold winds. On the 18th of February, for example, we had a blizzard, with driving snow, the most inclement day of the winter. At seven o'clock when I looked out, four Downy Woodpeckers were in the elm, all trying their best to eat, though the branches shook till it was hard work to hold on. They stayed much of the forenoon. At ten o'clock, when the storm showed signs of abating, though it was still wild enough, a Chickadee made his appearance and whistled *Phœbe* again and again — "a long time," my note says — in his cheeriest manner. Who can help loving a bird so courageous, "so frolic, stout, and self-possest?" Emerson did well to call him a "scrap of valor." Yet I find from a later note that "there were nothing like the usual number of Chickadees so long as the fury lasted." Doubtless most of them stayed among the evergreens. It is an old saying of the Chickadee's, frequently quoted, "Be bold, be bold, but not too bold." On the same day I saw a member of the household snowballing an English Sparrow away from one branch, while a Downy Woodpecker continued to feed upon the next one. The Woodpecker had got the right idea of things. Honest folk need not fear the constable.

For Teachers and Students

Birds and Seasons

FIRST SERIES

BEGINNING with this number, BIRD-LORE inaugurates an outline course of bird-study for the year, which it is hoped will be of assistance to both teachers and students. 'Keys' and 'Manuals' for identification of at least the more common species are now so readily accessible it is assumed that the student is well equipped in this respect, but we believe that the value of these books can be greatly increased by the addition of exact information in regard to the manner and times of occurrence of the birds of definite localities. That is, given a text-book for the purpose of identifying, and the student can have no other more desirable book than a companion volume which will tell him just what birds he may expect to find and just when he may expect to find them. In other words, the ideal manual would be one on the birds of your own immediate vicinity.

In the first place, therefore, BIRD-LORE will attempt to secure for its readers information in regard to the birds about their homes, and, as a contribution toward this end, it will present lists of birds from six localities in the United States, namely, Boston, Mass., by Ralph Hoffmann; New York City, by the Editor; Philadelphia, by Witmer Stone; Oberlin, Ohio, by Lynds Jones; Glen Ellyn, Ills., by B. F. Gault; San Francisco, by Charles Keeler.

These lists, of course, cover only a small portion of the ground, but it is further proposed to aid students in this respect by enabling them to secure copies of desirable local bird-lists which have been published. Authors often have duplicate copies or 'extras' of such lists, reprinted from some scientific publication, difficult in itself to secure, which they would be glad to dispose of, and we invite, indeed urge, them to send us the titles of such local lists, or other papers on birds in nature, with the prices asked, and these titles will be published in BIRD-LORE without charge.

The learning of a bird's name, however, is only the first step in bird-study, and as a means of directing the student into certain definite lines of work, we shall suggest appropriate subjects for study throughout the year.

Migration is undoubtedly the most striking phenomenon of bird-life, and to its influences are due those marked changes in our bird

population which make no two months in the bird student's year alike, and give to his outings a perennially renewed interest. Consequently, the subject which has most naturally suggested itself for the year's study is that of 'Birds and Seasons.'

Under this head the writers we have mentioned will call the student's attention to the more significant phases of bird-life as they are controlled by season, and there will be added suggestions for lines of study, related articles, and references to the literature of the subjects under consideration. Thus we may take up in their due time the questions of the relation of food to the distribution of birds, migration, mating, singing, nesting, molting, etc.

Such a plan, it seems to us, should be of value not only to the isolated worker but to the members of bird clubs and natural history societies, who it is hoped may find it advisable to take the course of study here suggested.

In this connection, we would call the attention of our more recent readers to BIRD-LORE'S Advisory Council, composed of over fifty prominent ornithologists, distributed throughout the United States and Canada, who have consented to respond to requests for information and advice. The names and addresses of members of the Council were published in BIRD-LORE for February, 1900, and an amended list will be published in our next issue.

DECEMBER AND JANUARY BIRD-LIFE NEAR BOSTON

By RALPH HOFFMANN

There is practically no southward or northward movement of birds between Christmas week and St. Valentine's Day. A bird seen between these dates is either a regular or an occasional winter resident, a chance straggler who has lost his way and his migrating companions, or one of those northern visitors whose coming no one can foretell. Not only is the number of species very small at this season, but the individuals have become comparatively very scarce. In the deep woods we walk in utter solitude, until at last the whirr of a Grouse or the lisp of distant Chickadees breaks the stillness. For the rarer winter birds we must look into sheltered hollows, or near the sea, where the snow soon disappears. Our intercourse with the few friends that are left now gains an added value. We make pilgrimages to some wintering Song Sparrow, and feel repaid for a long walk by the sight of a Shrike balancing on the top of a tree. The squawk of a Robin, so familiar in summer, is now a startling sound. By hanging suet, bones or broken nuts near the house, we shall attract the Chickadees and their companions, the Nuthatches and Downy Woodpeckers, and all soon become regular and most

welcome visitors. Occasionally there comes a winter when something impels the northern wanderers, the Crossbills, Redpolls, and Pine Grosbeaks to move southward in force. These unfamiliar visitors lend to winter a touch of the excitement which characterizes the time of migration. There are strange notes in the air and flocks of bright colored birds with an engaging mixture of restlessness and confidence; the lean and barren season now becomes a time of plenty.

PERMANENT RESIDENTS

Bob-White,* Ruffed Grouse, Red-shouldered Hawk (many other Hawks are now and then met with in winter), Screech Owl (all the Owls are resident, but this species is commonest near man), Hairy Woodpecker, Downy Woodpecker, Flicker,* Blue Jay, Crow, Meadowlark,* Goldfinch, House Sparrow, Song Sparrow,* White-breasted Nuthatch, Chickadee.

NOTE.—Individuals of a few other hardy species often winter in favorable localities, e. g., Swamp Sparrow, Kingfisher.

WINTER VISITANTS

Regular.—Herring Gull† (the common harbor Gull; several other species occur off shore), Golden-eye† (the common harbor Duck; many other Ducks, as well as Grebes and Loons occur off shore), Shore Lark† (regular only on the beaches), Snowflake† (occasionally occurs inland), Tree Sparrow, Juncos, Northern Shrike, Myrtle Warbler,† Brown Creeper, Golden-crowned Kinglet.

Irregular.—Pine Grosbeak, Purple Finch, White-winged Crossbill, American Crossbill, Pine Finch, Redpoll, Cedar Waxwing, Red-breasted Nuthatch, Robin (there is often an influx of Robins and Cedar Waxwings in midwinter).

NOTE.—Individuals of a few other species often winter in favorable localities, e. g., White-throated Sparrow, Winter Wren.

DECEMBER AND JANUARY BIRD-LIFE NEAR NEW YORK CITY

By Frank M. Chapman

Although during the winter our bird population is reduced to the minimum, the comparative advantages of ornithology as a field study are then more evident than at any other season. The entomologist has hung up his net, the botanist laid aside his vasculum, but the ornithologist, putting opera glass in pocket, takes the field with the certainty of meeting some feathered friend, and the always encouraging possibility of forming a new acquaintance.

Winter begins when frost seals the ground, the ponds and streams, and snow covers the earth. Then the Woodcock, Mourning Dove, Kingfisher, Rusty Blackbird, Cowbird, and the Vesper, Field, Chipping and Swamp Sparrows go further south and we are left with only the hardy, permanent residents and winter visitants. From the date of the departure of these tardy migrants until, late in February,

*Occurs regularly in winter only near the coast.
†Occurs regularly only near the coast.

when the coming of the first Robin or Grackle announces the birth of a new bird year, no evidences of a regular migratory movement are to be observed; and this can be said of no other season.

Bird-life, however, is by no means at a standstill, the irregular wanderings of many winter birds, such as the Crossbills, Redpolls, and Pine Grosbeak, which may be abundant some years and absent others, always giving the bird-lover something to look and to hope for. Again, we may find in some sheltered spot a waif or stray of the migration, perhaps a Hermit Thrush, Dove, or Robin, or even a Thrasher; while on one surprising occasion a Blue-winged Warbler was actually seen in January (January 6, 1900, Bronx Park. See Bird-Lore, 1900, pp. 26, 59).

Food is now the controlling factor in a bird's life, and from the Herring Gulls in our harbor to the Juncos at our doorstep the movements of birds are governed by the supply of food.

This, then, is the season when, by catering to their wants, we may establish relations with birds who are strangers to us in the summer. Nor should we confine our labors to our dooryards, but remember the Bob-Whites, and the White-throated and Song Sparrows, who are picking up a scanty living in the fields and woods.

PERMANENT RESIDENTS

Bob-White, Ruffed Grouse, Red-shouldered Hawk, Red-tailed Hawk, Broad-winged Hawk,* Marsh Hawk, Sparrow Hawk, Duck Hawk,* Sharp-shinned Hawk, Cooper's Hawk,* Bald Eagle,* Screech Owl, Long-eared Owl,* Short-eared Owl, Barred Owl, Great Horned Owl,* Downy Woodpecker, Hairy Woodpecker, Flicker, American Crow, Fish Crow, Blue Jay, Starling (local), Meadowlark, Song Sparrow, House Sparrow, American Goldfinch, European Goldfinch (local), Purple Finch, Cardinal* (local), Cedar Waxwing, Carolina Wren* (local), Tufted Titmouse* (local), White-breasted Nuthatch, Bluebird.

WINTER VISITANTS

Regular.— Herring Gull (other Gulls, and water birds are found in the Lower Bay and similar favorable places), Rough-legged Hawk, Acadian Owl,* Horned Lark, Prairie Horned Lark, Ipswich Sparrow (coast only), White-throated Sparrow, Junco, Tree Sparrow, Northern Shrike,* Myrtle Warbler, Winter Wren, Brown Creeper, Golden-crowned Kinglet.

Irregular.— Goshawk, Snowy Owl, Pine Finch, Redpoll, Snowflake (more regular near the coast), Lapland Longspur,* American Crossbill, White-winged Crossbill, Pine Grosbeak, Red-breasted Nuthatch.

DECEMBER AND JANUARY BIRD-LIFE NEAR PHILADELPHIA

By Witmer Stone

December and January in this vicinity constitute a period of 'winter rest' in bird-life, between the disappearance of the last band of late fall migrants and the pioneer spring arrivals from the south.

*Uncommon.

The lists of the daily observer reach their lowest ebb at this time. The total number of species present is much greater than is generally supposed, but the birds are not very active and have but little to say; while the observer perhaps is cold and fast loses his enthusiasm in the face of a biting wind or a driving snow-storm.

Low meadows and swamps with sheltering thickets are the most favorable localities, and here will be found great mixed flocks of Tree Sparrows, Song Sparrows and Juncos, with perhaps a few Field and Swamp Sparrows. This association in flocks is characteristic of most birds at this season. The Meadowlarks congregate in this manner and come down from the open upland to seek food and shelter on the broad river marshes; while in the tree-tops of the woods and orchards are mixed troops of Nuthatches, Chickadees and Golden-crowned Kinglets, with perhaps a Downy Woodpecker or Tufted Tit.

Crows are probably the most conspicuous of all winter birds, flying morning and evening in long black lines to and from their roosts. Winter is not a time of song, but we have some exceptions to the rule. Every bright sunny day the clear whistle of the Carolina Wren may be heard in the sheltered ravines, and the voices of the Cardinal and Tufted Tit, which he seems to imitate, are by no means silent. An added charm that this season possesses is the ever-present possibility of some sudden flight of Snowflakes, Crossbills, Redpolls or other rare visiter from the north, and no weather is too severe for the bird-lover when such acquaintances may be formed. Southern New Jersey, with its sheltering pines and cedars and its deep swamps, is a great winter rendezvous for birds, and many species winter there regularly which rarely or never occur in Pennsylvania in December or January.

PERMANENT RESIDENTS

Great Blue Heron, Woodcock, Bob-White, Dove, Red-tailed Hawk, Red-shouldered Hawk, Broad-winged Hawk, Cooper's Hawk, Sharp-shinned Hawk, Sparrow Hawk, Great Horned Owl, Screech Owl, Long-eared Owl, Barn Owl, Hairy Woodpecker, Downy Woodpecker, Crow, Blue Jay, Meadowlark, Goldfinch, House Sparrow, Song Sparrow, Swamp Sparrow, Field Sparrow, Cardinal, Cedar Waxwing, Carolina Wren, Tufted Titmouse, White-breasted Nuthatch.

WINTER VISITANTS

Regular.— Herring Gull, Rough-legged Hawk, Pigeon Hawk, Marsh Hawk, Short-eared Owl, Junco, Tree Sparrow, White-throated Sparrow, Pine Finch, Purple Finch, American Pipit, Winter Wren, Brown Creeper, Black-capped Chickadee, Golden-crowned Kinglet.

Irregular (omitting Water Fowl).— Duck Hawk, Goshawk, Acadian Owl, Snowy Owl, Barred Owl, Horned Lark, Prairie Horned Lark, American Crossbill, White-winged Crossbill, Pine Grosbeak, Snowflake, Lapland Longspur, Redpoll, Northern Shrike.

More or less regular in southern New Jersey in winter, occasional near Philadelphia: Killdeer, Turkey Vulture, Kingfisher, Flicker, Yellow-bellied Sapsucker, Phœbe, Red-winged Blackbird, Purple Grackle, Cowbird, Vesper Sparrow, Savanna Sparrow, Ipswich Sparrow (on coast), Sharp-tailed Sparrow (on coast), Myrtle Warbler, Long-billed Marsh Wren, Short-billed Marsh Wren, Carolina Chickadee, Robin, Hermit Thrush, Bluebird.

DECEMBER AND JANUARY BIRD-LIFE AT OBERLIN, OHIO

By Prof. Lynds Jones

Winter does not come upon us with any severity until late in December. It is rarely true that snow covers the ground for more than a few days at a time during the entire month. Frequently the weather is mild until well toward the New Year, with only an occasional sharp day. On account of this mildness many birds which go southward when winter really comes remain with us until Christmas time.

January is also a varied month, frequently opening with severe weather and snow-covered landscape. Toward the middle of the month there is usually a thaw which may take away all the snow and be so spring-like that the birds begin to sing and mate, but none come up from the south. It is during the last week of December and the first week or ten days of January that the most of the winter birds visit us, many of them remaining to or beyond the end of January. Following the thaw the winter settles down again in even greater severity, the month closing with a zero temperature and not a little snow. But however the weather may be, the January birds are permanent residents and winter visitors, none of them birds from the south. Sometimes an ice-storm follows the January thaw, covering everything with a thick ice-coat, and then the birds may be driven south. This often happens to the birds of prey, especially the Hawks. The Owls seem able to survive in any weather.

PERMANENT RESIDENTS

Herring Gull, Bob-White, Ruffed Grouse, Mourning Dove (rare), Marsh Hawk (uncommon), Sharp-shinned Hawk, Cooper's Hawk (uncommon), Red-tailed Hawk, Red-shouldered Hawk, Broad-winged Hawk (rare), Bald Eagle, Pigeon Hawk (rare), Sparrow Hawk, Barn Owl (rare), Long-eared Owl, Short-eared Owl (rare), Barred Owl, Saw-whet Owl (rare), Screech Owl, Great Horned Owl (rare), Hairy Woodpecker, Downy Woodpecker, Red-headed Woodpecker, Red-bellied Woodpecker, Flicker (not common), Prairie Horned Lark, Blue Jay, American Crow (not common), Meadowlark (not common), American Goldfinch, Song Sparrow, Cardinal, Cedar Waxwing (not common). White-breasted Nuthatch, Tufted Titmouse, Chickadee.

WINTER VISITANTS

Horned Grebe (rare), Iceland Gull (rare), Old-Squaw (rare), Goshawk (rare), Rough-legged Hawk, Golden Eagle (uncommon), Snowy Owl (rare), Hawk Owl (rare), Horned Lark, Purple Finch, American Crossbill, White-winged Crossbill (rare), Redpoll (rare), Pine Finch (rare), Snowflake, Lapland Longspur, Tree Sparrow, Northern Shrike, Winter Wren, Brown Creeper (uncommon), Golden-crowned Kinglet.

SUMMER RESIDENTS WHICH LINGER UNTIL DECEMBER

Woodcock, Killdeer, Cowbird, Red-winged Blackbird, Bronzed Grackle, White-throated Sparrow, Towhee, Robin, Bluebird.

FALL MIGRANTS WHICH PASS SOUTH IN DECEMBER

Mallard, Canada Goose, Rusty Blackbird, Fox Sparrow, White-throated Sparrow, American Pipit, Myrtle Warbler, Ruby-crowned Kinglet.

DECEMBER AND JANUARY BIRD-LIFE AT GLEN ELLYN (NEAR CHICAGO), ILLINOIS

By Benjamin T. Gault

A marked feature of our winter months are the daily movements of the Crows as they go to and from their roosts. The Downy and Hairy Woodpeckers, with the White-breasted Nuthatches and Chickadees, contribute their share in rendering our orchards and woods attractive, while the Shore Larks and Lapland Longspurs serve well in a similar capacity for our fields.

Visiting the osage hedges and sprout-woodland pastures, we may find, to our delight, small parties of Juncos, Tree Sparrows and Goldfinches busily plying their vocation of seed-gathering.

The Northern Shrike, Rough-legged, Red-tailed and Red-shouldered Hawks, together with the Screech and Short-eared Owls, and occasional Redpoll Linnets, are more or less in evidence during these months.

In late January we may chance to hear the cheering notes of the Meadowlark, or perhaps stumble upon a belated or over-zealous Red-headed Woodpecker or Flicker, or, possibly, in some sheltered retreat, find the Robin. However, these are incidents not always to be expected or depended on.

A reference to the haunts of the Prairie Hen has been omitted; altogether of a local nature, one must sometimes search long and diligently to find it.

Such then, briefly, are the main features of our winter bird-life, which, to be more thorough and explicit, naturally tabulate themselves beneath the following headings:

PERMANENT RESIDENTS

Ruffed Grouse, Prairie Hen, Cooper's Hawk, Red-tailed Hawk, Red-shouldered Hawk, Barred Owl, Screech Owl, Hairy Woodpecker, Downy Woodpecker, Prairie Horned Lark, Blue Jay, Crow, House Sparrow, Goldfinch, White-breasted Nuthatch, Chickadee.

WINTER VISITANTS

Regular.—Rough-legged Hawk, Short-eared Owl, Horned Lark, Lapland Longspur, Tree Sparrow, Junco, Northern Shrike.

Irregular.—Canada Goose, Long-eared Owl, Red-headed Woodpecker, Flicker, Meadowlark, Rusty Blackbird, Evening Grosbeak, Redpoll, Cedar Waxwing, Brown Creeper, Golden-crowned Kinglet, Ruby-crowned Kinglet, Robin.

DECEMBER AND JANUARY BIRD-LIFE ON EASTERN SIDE OF SAN FRANCISCO BAY

By Charles Keeler

To describe the bird life of California within the limits of the present series of sketches would be an impossible task. This great state, stretching in a broad band along the Pacific coast, diversified as it is by two long mountain ranges extending in a general northerly and southerly trend, embracing a wide interior valley and cutting off the district to the east, which is left an arid waste, contains a greater number of faunal zones than any other region of corresponding size on the American continent. In the valleys the rigors of an eastern winter are unknown; in the mountains the snow-drifts are as deep as in Canada. Even in so restricted a section as the San Francisco Bay region there is considerable diversity in fauna and flora. Upon the western side of the bay, and more particularly on the northwestern shore, the redwood forests determine to a large extent the distribution of both plants and birds, while on the eastern shore the redwoods are confined to one or two restricted pockets in the hills. It is to the birds of this eastern side that I shall confine my observations. The hills here rise to a height of a thousand feet or more, with a gently descending plain at their base, reaching down to the bay shore two or three miles away. These hills are treeless save where forests of eucalyptus have been planted and are covered with grass and chaparral. In the little cañons which cut through the range at frequent intervals are groves of superb live-oak trees in the lower reaches and laurel, scrub oak and alders higher up.

In the severest winter weather the thermometer seldom falls as low as 25°, and frosty mornings are the exception. Rain falls at more or less frequent intervals during this season, but showers are almost unknown during the summer months. As a consequence of the mildness of the winters, birds are quite as abundant at this time of year as at any other, and the list of permanent residents is comparatively large. Some among these, such as the California Brown Towhee, Spurred Towhee, the Green-backed or Arkansas Goldfinch, Plain-crested Titmouse, Wren-Tit, California Bush-Tit, California Jay, Anna's Hummingbird, Western Meadowlark, Samuel's Song Sparrow, and the Red-shafted Flicker, are, so far as I can detect, permanent residents. By this I mean that there seems to be no evidence that the individuals which nest here go away for the winter to be replaced by others of the same species. Of course this is a difficult point to prove, but there is every indication of stability with these species. They are found in about the same places all the year round, and at no one season do they seem more abundant than at another. To have learned to distinguish them

readily will be a solid beginning in birdcraft for any one in this region.

In addition to these faithful dwellers in our hills and cañons are a number of other species which are nearly always with us, but in greater or less abundance, indicating a more migratory habit. Among these I may mention the Gambel's Sparrow, which nests here rather sparingly, but comes in large flocks for the winter, the Lutescent Warbler, Vigor's Wren, Western Goldfinch, California Shrike, Desert Sparrowhawk and Western Red-tailed Hawk. The two Hawks and the Shrike might be placed in the first list with almost equal propriety.

In the months of December and January, then, the above-mentioned birds may be confidently sought for in the cañons and gardens. Associating with them, however, is a host of winter visitants which are equally abundant and peculiarly characteristic of the rainy season. The most numerous and constant of these are the Golden-crowned Sparrow, Oregon Junco, American Pipit, Audubon's Warbler, Dwarf Thrush and Ruby-crowned Kinglet. The Western Golden-crowned Kinglet is less common, although at times it may be found in considerable numbers in the live-oak trees. Townsend's Sparrow is with us all winter, but its retiring habits make it a less conspicuous element in the midwinter company. The Red-breasted Nuthatch is irregular in its visits, it sometimes being found in large numbers, and again being wholly absent. The same may be said of both the Western Robin and the Western Bluebird, which roam the country in large flocks and pass from one locality to another. They are usually abundant after a heavy snowfall in the mountains. The Varied Robin is perhaps more constantly with us during the winter months, but is so shy and quiet that it is often overlooked. Among the other less abundant winter visitants, which are nevertheless not rare, are Hutton's Vireo, Pine Finch, Say's Pewee, Red-breasted Woodpecker, Gairdner's Woodpecker, California Woodpecker and the Cedar Waxwing.

Of midwinter birds which are rare or accidental in their visits may be mentioned Lewis' Woodpecker, the Evening Grosbeak, and Townsend's Solitaire. From the above lists it is evident that our winter groves and cañons are teeming with bird-life. Some among these December and January species may even favor us with an occasional snatch of song, although their call notes are most frequently heard. The Golden-crowned, and Gambel's Sparrows are constant winter singers; Samuel's Song Sparrow often sounds its ditty, and the note of the Western Meadowlark is heard from time to time in the fields. The Wren-Tit sings more or less in its simple fashion the year through, and its characteristic strain may be heard ever and anon in the cañon. Thus it happens that we may find intimations of approaching spring

throughout the winter, and evidences of joy and conviviality in the midst of December.

SUGGESTIONS FOR THE MONTHS' STUDY

Food and Distribution.—Observe relation between the food supply, as it is controlled by temperature, and the departure of the last migrants (see preceding articles). Compare the food of migratory, summer-resident birds with that of winter birds; the former being insect- and fruit-eaters, the latter, seed- or flesh-eaters. Note variation in the food of certain birds, such as the Flicker, Bluebird and Robin, which, insectivorous in summer, later subsist on fruit, including winter berries, and are thus sometimes found throughout the year as far north as Massachusetts. Are these birds represented by the same individuals at all seasons? What permanent residents are resident in the strict sense of the word? During the winter the relation between food and distribution is especially marked, a failure of the food-supply at the north occasionally bringing us great numbers of boreal birds. (See Fisher and Loring, Evening Grosbeaks in New York, 'Forest and Stream,' XXXIV, 1890, p. 64; Brewster, Evening Grosbeak in New England, *Ibid.*, p. 44; Butler, 'Some Notes Concerning the Evening Grosbeak,' 'The Auk,' IX, 1892, p. 238; Brewster, 'A Remarkable Flight of Pine Grosbeaks,' 'The Auk,' XII, 1895, p. 245; Chapman, 'The Season's Flight of Crossbills,' Bird-Lore, II, 1900, pp. 25, 59.)

The presence of food may induce birds which generally winter further south to remain through the winter. A small flock of Doves passed the winter at Englewood, N. J., feeding exclusively, as far as was observed, on the grain in a pile of chaff from buckwheat, winnowed in the field. Myrtle Warblers are common at the same locality during the winter when there is an abundance of bayberries, but when there are no berries there are no Warblers.

Observe how the daily wanderings of flocks of Juncos, Tree Sparrows, etc., are governed by food. Are these flocks composed of the same individuals? Have they a regularly frequented roosting place? Note the roosting habit of Crows (see Stone, Bird-Lore, I, 1899, 177).

Food thus exerts so great an influence on a bird's range at this season, when the supply may be limited, that we may govern at least the local distribution of birds by supplying them with proper food. (See Torrey, in this number of Bird-Lore; Davenport, in Lange's 'Our Native Birds;' Merriam, 'Birds of Village and Field;' Bird-Lore, I, 1899, pp. 19, 55, 185.)

Economic Value of Winter Birds.—At this season, Hawks and Owls, by destroying harmful rodents, Sparrows, by eating the seeds of injurious weeds, and Creepers, Woodpeckers, Nuthatches, Chickadees and Golden Kinglets, by devouring the eggs and larvæ of insects, are of inestimable benefit to man. (See Weed, 'Winter Food of the Chickadee,' publications of the New Hampshire Agricultural Experiment Station, Durham, N. H.; Forbush, Mass. Crop Rep. for July, 1895, pp. 20–32; Beal, 'Food of Woodpeckers,' Bull. No. 7, Biological Survey, U. S. Dept. of Agriculture;* Judd, 'Birds as Weed Destroyers,' Yearbook of Dept. of Agriculture* for 1898, pp. 221–232; Fisher, 'Hawks and Owls in Relation to Agriculture.')

Bird-Census.—The comparatively small number of birds present during the winter, together with the absence of foliage, except on coniferous trees, make it possible to estimate the number of individuals occupying a given area. Such estimates are not only of interest in themselves, but they are of assistance in determining the economic value of birds. (See beyond, 'A Christmas Bird Census.')

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*For all government publications apply to the Supt. of Documents, Washington, D. C.

In this connection methods of recording observations are of importance (See Pynchon, 'Every-Day Study of Birds for Busy People, Including a method of Recording Observations,' BIRD-LORE, II, 1900, p. 19).

SUGGESTIONS FOR THE MONTHS' READING

Thoreau, 'Winter,' also 'Winter Animals' and 'The Pond in Winter' in 'Walden'; Burroughs, 'Winter Sunshine,' also 'A Snow-Storm' and 'Winter Neighbors' in 'Signs and Seasons'; Torrey, 'A Florida Sketch Book,' also 'Winter Birds about Boston' in 'Birds in the Bush,' 'A New England Winter,' 'A Rambler's Lease,' and 'December Out-of-Doors' in 'The Foot-Path Way'; Bolles, 'The Land of the Lingering Snow'; Wright, 'A Winter Mood' in 'The Friendship of Nature'; Parkhurst, 'December' and 'January' in 'The Birds' Calendar'; Keeler, 'January in Berkeley' in 'Bird Notes Afield.'

1. What Bird is this?

Field Description.—Length, 6.25 in. Hind-neck, rufous; back and crown black and buff; outer ail-feathers marked with white; breast black, more or less veiled with white; belly white. *Winter-Range*—From Middle States and Colorado northward.

NOTE.—Each number of BIRD-LORE will contain a photograph, from specimens in the American Museum of Natural History, of some widely distributed, but, in the eastern United States, at least, little-known bird, the name of which will be withheld until the succeeding number of the magazine, it being believed that this method of arousing the student's curiosity will result in impressing the bird's characters on his mind far more strongly than if its name were given with its picture.

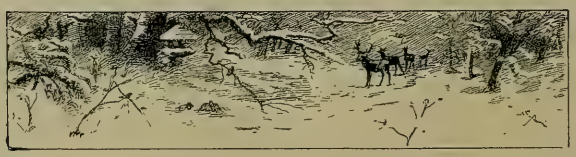
A Christmas Bird-Census

IT is not many years ago that sportsmen were accustomed to meet on Christmas Day, 'choose sides,' and then, as representatives of the two bands resulting, hie them to the fields and woods on the cheerful mission of killing practically everything in fur or feathers that crossed their path—if they could.

These exceptional opportunities for winning the laurels of the chase were termed 'side hunts,' and reports of the hundreds of non-game birds which were sometimes slaughtered during a single hunt were often published in our leading sportsmen's journals, with perhaps a word of editorial commendation for the winning side. We are not certain that the side hunt is wholly a thing of the past, but we feel assured that no reputable sportsman's journal of today would venture to publish an account of one, unless it were to condemn it; and this very radical change of tone is one of the significant signs of the times.

Now BIRD-LORE proposes a new kind of Christmas side hunt, in the form of a Christmas bird-census, and we hope that all our readers who have the opportunity will aid us in making it a success by spending a portion of Christmas Day with the birds and sending a report of their 'hunt' to BIRD-LORE before they retire that night. Such reports should be headed by the locality, hour of starting and of returning, character of the weather, direction and force of the wind, and the temperature; the latter taken when starting. The birds observed should then be added, following the order in which they are given in the A. O. U. 'Check List,' with, if possible, the exact or approximate number of individuals of each species observed.

Promptness in sending these lists to BIRD-LORE (at Englewood, N. J.) is urged in order that the best of them may be published in our February number, where they will be not only of interest to other participants in the 'hunt,' but will also constitute, in a measure, a census of Christmas bird-life.



For Young Observers

The Rev. Mr. Chickadee, D. D.

By FLORENCE A. VAN SANT, Jay, Essex County, N. Y.

A little clergyman is he,
With black and white cravat;
He bears a coveted degree,
And wears a soft silk hat.

With happy heart and merry voice,
He braves the cold and heat;
And to the loved one of his choice,
He whistles soft and sweet.

So overflowing is his strain,
That he could dub "D.D."
Young theologues with meager brain
And bump of vanity.

His sect is congregational,
The wild woods are his church,
The wind his "choir invisible,"
His pulpit is a birch.

The sermon we should not forget,
"Happy and cheerful be,
Have diligence, be brave, don't fret,"
Says Chickadee, D.D.

My Exploit with a Crossbill

BY NINA NIGHTINGALE, Wellesley Hills, Mass. (Aged 9½ years)

ONE day some time in January I went to play with a friend. We went out on the lawn to watch some birds we had seen there. When we got out we tried to see how near we could get without frightening them.

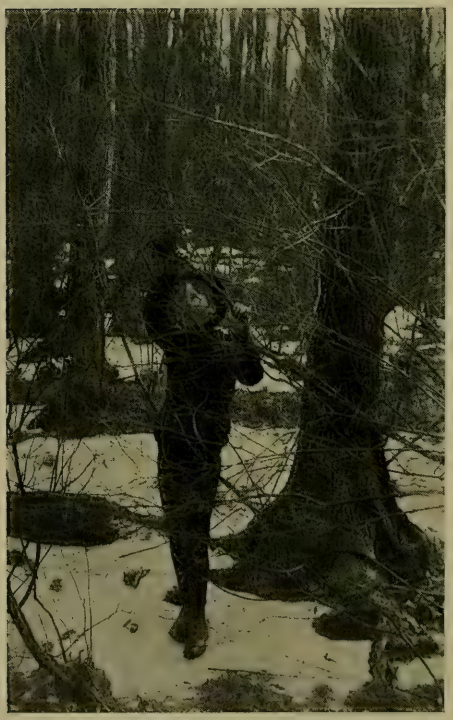
I followed them all around and succeeded in getting quite near. They would sometimes allow me to touch them, but I could not pick them up. I decided they were Crossbills, and so that is what I will call them. I went in the house and got a small piece of bread to crumb for them. That was soon gone, though the birds would not touch it. I got another piece and some crackers, which I sprinkled

about the lawn. The birds ate some of the crackers, but none of the bread crumbs. I kept trying to catch them and touched them several times. I did not run after them and make them fly; I just walked about after them and tried to pick them up. I finally picked up one, a female, as I could see from the coloring. I let her go very soon, as she seemed to be afraid of me. I followed the birds everywhere and soon found out that the males were a great trouble, because they kept trying to entice me away from the females.

At last I picked up one of the males and he sat on my finger and ate cracker crumbs out of my hand. The Crossbill sat on my hand and did not seem to mind it until I carried him over to my friend for her to see; then, he was greatly frightened. I let him go as soon as she had seen him.

Bird-Nesting in Winter

WHEN the leaves fall how many birds' secrets bare limbs tell! This is the time for collecting birds' nests before they have been wrecked by winter snows and wind. They may readily be preserved by making use of the simple wire nest-holder described in BIRD-LORE for last December. A record should be kept of the kind of tree or bush in which they were placed and their height from the ground, as an aid in learning their names.



BIRD-NESTING IN WINTER

When one knows the commoner nests, such as those of the Robin, Wood Thrush, Vireo and Baltimore Oriole, a census may be made of the number of these birds found about our homes by counting all the nests we can find; though it must be remembered that the first two birds often build a second, and sometimes even a third nest. One young observer wrote BIRD-LORE that he saw sixteen Oriole's nests on the trees in one city block.

Notes from Field and Study

A Blue Jay Tragedy

The Blue Jay and limb, with a portion of the nest, from which the accompanying photograph was made were found by Mr. H. W. McConoghy, near Lehman, Pa. In building its nest the Jay had procured a strong horse-hair, which was used to

A BLUE JAY TRAGEDY

fasten the nest in a forked oak-limb. In passing the hair over and around the limb the bird made a hair loop, about ten inches long, in which its head became entangled and death by strangulation resulted.—H. M. Beck, *Wilkesbarre, Pa.*

Feeding a Shrike

One March morning a Northern Shrike, in the seclusion of a store doorway on the principal business street of Franklin Falls, N. H., was so engrossed in choking an English Sparrow that he was caught in the hands of a passing pedestrian. After an imprisonment of five or six hours, the bird came into our possession and was allowed his liberty in a small room. When a piece of raw beefsteak was given him his mode of accepting and using it proved of much interest. There was not a trace of fear in any of his movements during our whole interview. When we approached him and took hold of the meat in his beak, he would tug at it vigorously as if to pull it from our grasp. We did not at first divine his needs, as he hopped about the room seemingly in search of something that could not be found

The man present had on high storm overshoes, while another pair happened to be on the floor. The Shrike appeared to take a particular fancy to these articles of wear and examined first a shoe on the man's foot, then one on the floor. In a short time his strange actions began to have meaning to us, for it became evident that he desired to impale the meat on the buckle of the shoe, but the tongue of the buckle was not sharp enough to hold the steak that was repeatedly dragged across it. Observing this, a steel kitchen fork was procured and held out before the Shrike, and, without a moment's hesitation, he hopped upon the hand that held it, jerked the meat over the tines, and began to eat. Quick, forward thrusts of his partly spread wings added force to the work done by his powerful beak, as he tore off mouthful after mouthful of the meat. As an experiment, we removed the meat from the tines several times and held the fork some inches away. Each time the Shrike acted in the same manner. He took the meat in his beak, looked about until he saw his substitute for a thornbush, then he hopped to it, worked the meat in position and proceeded with his dinner.

Here was an opportunity for a photographer of bird-life, and we determined to keep him a day or two for sittings. Continuing to eat, perched on the hand that

held the fork, but without restraint, he was carried across two rooms and down a flight of stairs, where a large packing box was made ready for his accommodation, but the plan proved a failure, for in the morning he was found dead. It was thought that he was injured by a severe choking received the preceding day while his captor was inducing him to give up his grip on the English Sparrow, and death was believed to have resulted from this cause.—Ellen E. Webster, *Franklin Falls, N. H.*

[Mrs. Webster's exceedingly interesting experience should dispose of the absurd theory that Shrikes impale their victims in pure cruelty, it being evident, in this instance, at least, that the combination of a raptorial bill and feeding habits, in connection with passerine feet, which are apparently not adapted to grasping prey, forced the bird to fasten his food to something before he could tear it into edible pieces.—F. M. C.]

American Ornithologists' Union

The Eighteenth Congress of the American Ornithologists' Union was held in Cambridge, Mass., November 12–15, 1900. The attendance of active and associate members and the public was larger than at any previous Congress, the audience at times numbering between two and three hundred.

In addition to the interest aroused by the papers presented, a list of which is printed on another page, the hospitality of the Cambridge members greatly increased the enjoyability of the meeting and at the same time afforded opportunity for that social intercourse which is so important a part of conventions.

On the evening of the 15th, Mr. Edward Waldo Emerson lectured to the members of the Union on his personal recollections and estimate of Thoreau, at the residence of Mr. Brewster, and the following day, after this admirable prelude, a number of the members, under Mr. Brewster's guidance, visited many of the places about Concord which Thoreau has made so familiar to all nature lovers.

At the business meeting of the Union, held at Brewster's Museum on the evening of the 12th, the following officers were elected for the ensuing year: President, C. Hart Merriam; vice-presidents, Charles B. Cory and C. F. Batchelder; secretary, John H. Sage; treasurer, William Dutcher; councilors, Frank M. Chapman, Ruthven Deane, J. Dwight, Jr., A. K. Fisher, E. W. Nelson, Thomas S. Roberts, Witmer Stone. As ex-presidents, J. A. Allen, William Brewster, D. G. Elliot, and Robert Ridgway also serve as councilors.

There were no candidates for active membership. One honorary member, Dr. A. B. Meyer, two corresponding members, Count E. Arrigoni degli Oddi and Walter E. Bryant, and sixty-seven associate members were elected.

At this meeting notice was given of a proposed change in the by-laws of the Union of far-reaching importance. It provides for the increase of the limit of active membership from fifty to seventy-five, but prohibits the election to this class of more than five members annually. It designates the members of this class Fellows instead of Active Members, and provides for the establishment of a new class of members, likewise limited to seventy-five in number, who shall be known simply as Members, but who shall not have the privileges of voting, etc., accorded Fellows. Action on this proposed amendment will be taken in November, 1901.

The more important features of the public sessions of the Union, which were held in the Nash Lecture room of Harvard University Museum, were memorial addresses on Elliott Coues and George B. Sennett, delivered by D. G. Elliot and J. A. Allen, respectively; William Dutcher's report on the expenditure of about $1,000 of the Thayer fund, T. S. Palmer's account of the methods employed for the enforcement of the Lacey Bill, and the large series—about four hundred in number—of excellent lantern slides exhibited.

Mr. Dutcher stated that he had secured the services of twenty-three wardens and five superintendents, the latter being members of the Union who volunteered, and with their assistance had given all protection afforded by law to the water birds breeding from Virginia to Maine.

Book News and Reviews

AUDUBON BIRD CHART NO. 2. Prang Educational Co., Boston and New York. Price, $1.30. With COMMON BIRDS: SECOND SERIES, by RALPH HOFFMANN. Mass. Audubon Society, Boston. 12mo. Pages 20.

It is a pleasure to know that the excellent Audubon Bird Chart No. 1, issued by the Massachusetts Audubon Society, in 1898 (see BIRD-LORE, Vol. I, p 27), has met with a success which has warranted the Society in issuing this Chart No. 2. Like Chart No. 1, it contains life-size figures of twenty-six birds reproduced in color even more effectively than those of the previously published chart. This chart, as was the case with its predecessor, is accompanied by a pamphlet by Mr. Ralph Hoffmann, containing well-written biographies of the twenty-six birds figured. We especially commend these Bird Charts, with their accompanying text-books, to teachers, as the most satisfactory investments for the class-room, from an ornithologist's point of view, of which we know.—F. M. C.

BIRDS OF THE YUKON REGION, WITH NOTES ON OTHER SPECIES. By LOUIS B. BISHOP, M.D. North American Fauna, No. 19, pages 47–96, Washington, 1900.

During the summer and early autumn of 1899 Dr. Bishop accompanied Mr. Wilfred H. Osgood, of the Biological Survey, on a "biological reconnaissance of the Yukon River region." The route lay over the White Pass to the headwaters of the Yukon and thence down this river to its mouth. Dr. Bishop presents an introduction on the general features of the bird-life of this little-known part of our country, tables of distribution, and a well-annotated list of 171 species and sub-species. Three of these—*Canachites canadensis osgoodi*, *Sayornis saya yukonensis*, and *Contopus richardsoni saturatus*—he has previously described as new ('Auk,' April, 1899).

Dr. Bishop is to be congratulated on the success attending an expedition which was evidently not lacking in hardships, and on the admirable manner in which he has presented its results —F. M. C.

FOOD OF THE BOBOLINK, BLACKBIRDS, AND GRACKLES. By F. E. L. BEAL, B. S., Assistant Biologist. Bull. No. 13, U S. Dept. of Agriculture, Division of Biological Survey. Washington, 1900. Pages 77, 1 map, 3 cuts, 2 diagrams.

In this Bulletin, Professor Beal continues his important studies of the food of North American birds, taking, for investigation, a group of birds which are as widely condemned by the average agriculturalist as are Hawks and Owls.

While it does not appear from Professor Beal's extended researches that these birds are as deserving of protection as are the Hawks and Owls, it is evident that their destructive abilities are greatly over-estimated. Indeed, of the nine species whose food has been studied only one is condemned, and this, every bird-lover will regret to learn, is our Bobolink, of which it is said, "Facts force the belief that until some practical method shall be devised to prevent its ravages upon the rice crop there can be no other conclusion than that the good done by the Bobolink does not in any appreciable measure counte-balance the harm."

Lack of space forbids an adequate notice of Professor Beal's paper, which should be in the hands of everyone interested in learning the economic status of our birds. —F. M. C.

INFORMATION CONCERNING GAME; SEASONS, SHIPMENTS, AND SALE. By T. S. PALMER and H. W. OLDS. Circular No. 31, U. S. Dept. of Agriculture, Division of Biological Survey. Washington, 1900. Pages 20.

The publication of this pamphlet further illustrates the wisdom of the drawers of the Lacey Bill when they made the Biological Survey responsible for its enforcement; and it will not be the fault of the Survey if the public remains in ignorance of the provisions of this act.

The contents of this circular are indicated by its title, and its publication by the government gives to it an authoritativeness lacking in other compilations of the game laws.— F. M. C.

Book News

In the future we propose to devote part of Bird-Lore's increased space to brief reviews of the contents of the leading ornithological journals, and in carrying out this plan we have been fortunate in securing the assistance of ornithologists whose coöperation is an assurance of our success in presenting a critical résumé of current literature relating to birds. Thus, Dr. J. Dwight, Jr., will review 'The Auk,' Dr. T. S. Palmer, 'The Condor,' and Dr. A. K. Fisher, 'The Osprey' and 'Wilson Bulletin.'

The book reviews will, of course, be continued, and, so far as human nature permits, they will be just and impartial, according to the reviewer's light; condemnation as well as praise being given when it seems deserved.

The attention of authors of local lists and other papers on field ornithology is called to our effort to place them in communication with students to whom their publications would be of especial assistance (see page 181).

The Massachusetts Audubon Society has issued a new edition of its attractive Audubon Calendar, which contains twelve colored plates of birds and short articles on the months by as many well-known writers. Copies of it may be obtained for seventy-five cents from Harriet E. Richards, Secretary, 234 Berkeley Street, Boston.

Bird photographs continue to occupy an increasing space in current literature. The New England Magazine contains an article by Sarah J. Eddy entitled 'The Robin's Nest,' illustrated by twenty-five excellent photographs which graphically depict the life of the nest from the period of incubation until the young were old enough to fly; and the first number of 'The World's Work' publishes twenty-three photographs by A. Radclyffe Dugmore, several of which are by far the best examples we have seen of this skilful photographer's work, if, indeed, they are not the best things of the kind which have been made in this country. Copies of the first-named article may be obtained for ten cents by addressing Box 9, Bristol Ferry, R. I.

The program of papers presented at the Eighteenth Congress of the American Ornithologists' Union held in Cambridge, Mass., November 12–15, included the following twenty-seven titles:

In Memoriam: Elliott Coues. D. G. Elliot.

In Memoriam: George B. Sennett. J. A. Allen.

The Sequence of Molts and Plumages of the *Laridæ* (Gulls and Terns). Jonathan Dwight, Jr.

A Study of the Genus *Sturnella*. Frank M. Chapman.

The Pterylosis of Podargus: with Further Notes on the Pterylography of the *Caprimulgidæ*. Hubert Lyman Clark.

The Molt of the North American Shore Birds (*Limicolæ*). Jonathan Dwight, Jr.

Nesting of the Yellow-headed Blackbird. Illustrated by lantern slides. Thomas S. Roberts.

Among the Terns at Muskeget, and on the New Jersey Coast. Illustrated by lantern slides. Wm. L. Baily.

The Season of 1900 at the Magdalen Islands; with remarks on Bird Photography. Illustrated by lantern slides. Herbert K. Job.

Field Notes on a few New England Birds. Illustrated by lantern slides. William Brewster.

Dooryard Ornithology. John N. Clark.

The "American Ornithologists' Union" of 1840–45. Witmer Stone.

Notes on the Spring Migration (1900) at Scarborough, N. Y. Louis Agassiz Fuertes.

Exhibition of Unpublished Water-color Paintings of Birds. Louis Agassiz Fuertes.

Impressions of Some Hawaiian Birds. H. W. Henshaw.

A Visit to the Birthplace of Audubon. O. Widmann.

Natural History of the Alaskan Coast. Illustrated by lantern slides. C. Hart Merriam.

Notes on a Nest of Massachusetts Brown Creepers. Illustrated by lantern slides. A. P. Chadbourne.

Bird Studies with a Camera. Illustrated by lantern slides. Frank M. Chapman.

Exhibition of Lantern Slides of Birds' Nests and Nesting Haunts, From Nature. Members.

Aptosochromatism. A reply to Drs. Dwight and Allen. Francis J. Birtwell.

On the Breeding Habits of Leconte's Sparrow. P. B. Peabody.

On the Value of Careful Observations of Birds' Habits. Edward H. Forbush.

Breeding of the Cerulean Warbler near Baltimore. Frank C. Kirkwood.

Report of the A. O. U. Committee on the Protection of North American Birds. Witmer Stone.

Results of Special Protection to Gulls and Terns obtained through the Thayer Fund. Illustrated. William Dutcher.

The Enforcement of the Lacey Act. T. S. Palmer.

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Edited by FRANK M. CHAPMAN

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Bird-Lore's Motto:

A Bird in the Bush is Worth Two in the Hand.

1900

1900 has been a red-letter year in the annals of American Ornithology, and while we do not propose to review in detail the advances which have been made in various departments of the science of birds, we may count our blessings, as it were, by summing up the more important features of the year's work in the fields of scientific, economic, popular, educational, legislative and protective ornithology.

In the field of science, Dr. Dwight's studies on the molt of North American birds constitute perhaps the most important single contribution to ornithological knowledge, and in combined faunal and systematic work we may mention Dr. Allen's and Mr. Bangs' papers on the birds of the Santa Marta region in Columbia, Mr. Stone's report on the McIlhenny collections from Alaska, a report on the Peary Greenland collections secured by the American Museum of Natural History, Mr. Loomis' studies of California water birds, Professor Beyer's 'Birds of Louisiana,' the first part of Professor McCoun's catalogue of Canadian birds, Dr. Bishop's 'Birds of the Yukon River Region,' and Captain Reynaud's suggestive study of the 'Orientation of Birds.'

In economic ornithology, Dr. Palmer's 'Review of Economic Ornithology in the United States' and Professor Beal's 'Food of the Bobolink, Blackbirds, and Grackles' are notable papers.

On the border line of scientific and popular ornithology are the camera studies of birds which not only present, in graphic form, much that was previously known, but add to our existing stock of information. The ready sale of the books on bird-photography, the increasing demand for popular literature relating to birds, the call for lectures on birds culminating in the inclusion of eight lectures in so representative a course as that of the Lowell Institute, all attest the growing interest in popular ornithology.

The rapid development of nature-study and the important place accorded birds in nature-study courses are well-known facts which have been emphasized during the past year by the inclusion of bird-study in the Chautauqua course and in the comparatively technical course of instruction given at the Woods Holl Marine Biological Laboratory. Nor should we fail to mention here the important educational work of certain of the Audubon Societies.

It is, however, in legislative and protective measures that the most important developments of the year are to be found.

Through the efforts of the Audubon Societies the bird laws of several states were greatly improved, and to the sentiment in favor of bird protection, for which the Audubon Societies are so largely responsible, in connection with the united influence of other bird and game protective associations, may in part be attributed the passage by Congress of the Lacey bill, doubtless the most important act for bird protection ever enacted, and for which every bird-lover cannot be too grateful to Congressman Lacey, who, in introducing and fighting for this bill, did so not alone as a representative of his constituents, but as a representative of the birds.

The far-reaching possibilities of this law are being realized through the foresight which made the enforcement of its provisions the duty of the Biological Survey, where, under the immediate supervision of Dr. Palmer, it bids fair to become an even more efficient means of bird protection than its most ardent supporters had anticipated; as witness the seizure of Gulls in Baltimore, reported beyond in the columns of the Audubon Department.

The proposition advanced by the milliners to the Audubon Societies and the American Ornithologists' Union is presumptive evidence that the efforts of these organizations to protect our birds have not been without their effect on the millinery trade.

Mr. Stone, chairman of the Union's committee on bird protection, has been commendably active, while two members of the Union, Messrs. A. H. Thayer and William Dutcher, have made a record in practical bird protection, which it is hoped will bear fruit in funds with which to continue their work during the coming year.

From every point of view, then, this brief enumeration of the more important developments of the year is encouraging in the extreme, and almost warrants one's belief in the speedy approach of that ornithological millennium when the value of birds to man will be common knowledge.

Bird-Lore for 1901

Bird-Lore has many friends, but we believe that the most ardent among them does not realize the pleasure it gives us to announce that beginning with the present number, Bird-Lore is to be enlarged one-fourth. Including advertisements of bird books and magazines, in themselves of interest, each issue will now contain fifty pages; a total of 300 for the year, with about seventy-five illustrations.

This, however, is only a beginning, for there is absolutely no limit to our ambition to add to Bird-Lore's value and attractiveness. With the present increase in size we are enabled to carry out some of our plans for the magazine's betterment; but we have in mind so many others of which we are sure our subscribers would approve, that we trust they will share our impatience in seeing them realized.

Bird-Lore's chief feature for the coming year will be the series of articles and lesson-outlines on 'Birds and Seasons,' the first instalment of which, together with an explanation of its objects, will be found on a preceding page.

Should this attempt to establish a definite course of study prove successful, we hope it may be the starting point in the development of an idea which includes a school of popular ornithology, with a summer encampment where both class-room and field instruction could be given by a corps of experienced teachers.

Lack of space prevented us from fulfilling some of the promises for the past year; they will, however, be redeemed during the next twelve months, when we shall publish Mr. Burroughs' account of his rarer bird visitors, Ernest Seton-Thompson's illustrated paper on 'How to Know the Hawks and Owls,' and H. W. Henshaw's important studies of Hawaiian bird-life.

Of unusual interest will be a stenographic report of an address on Audubon delivered by Dr. Elliott Coues before the American Ornithologists' Union in 1897, while Miss Maria R. Audubon will contribute several letters written by her famous grandfather to his son John — her father — in 1827.

Among other articles we may mention Mr. F. A. Lucas' description of the bird rookeries of Walrus Island, in Bering Sea, with some of the most remarkable photographs we have ever seen, Dr. T. S. Palmer's illustrated sketch of 'Ostrich Farming in America,' Dr. J. Dwight, Jr's. 'How Birds Molt,' and Mr. Montagu Sharpe's 'Bird Protection in Great Britain.'

The illustrations will not only be more numerous but actually better than those we have already published, and will include numerous photographs illustrating an account by the editor of a bird-nesting expedition with John Burroughs.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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Massachusetts.... MISS HARRIET E. RICHARDS, care Boston Society of Natural History, Boston.
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THE week beginning November 12 was full of significance for bird students. The meeting of the American Ornithologists' Union, always exhilarating, seemed doubly so owing to the general air of hospitality that prevailed in Cambridge. Those members of the Audubon Societies, also members of the American Ornithologists' Union, had many opportunities of coming in touch at the receptions so graciously tendered by Mrs. Brewster and Mrs. Frank Bolles, as well as the noontime gatherings for luncheon at the Colonial Club. Owing to the combination of the two meetings, American Ornithologists' Union and Aububon Conference, many people came to the latter who would otherwise have been absent, so that the majority of working societies, with the exception of Wisconsin, were represented, and it has been decided to endeavor to make such meetings annual.

The conference itself was not perhaps so satisfactory in bringing forth a general expression of opinion as was the previous social intercourse, but one thing was evident, that the usefulness of the societies and their power of retaining the interest of members is in direct ratio with their educational and law-making trend, and that emotionalism in members is a distinct disadvantage to a society and bound to repel the logical.

Personally, since the recent report of the American Ornithologists' Union Protective Committee, I have changed my mind as to the necessity of a separate conference of Audubon Societies. The vast distance to be traveled in order to meet at any one place will always prevent anything like a representative gathering from all sections. Rather let two members, having the qualifications, from each society join the American Ornithologists' Union as associate members. Let these members meet with the American Ornithologists' Union Protective Committee annually as auxiliaries, give their experi-

ences and receive in return the results of that committee's practical work in upholding the law, and suggestions for their own work for the coming year. Such a fusion would strengthen and unify the work of both bodies without hurting the individuality of either and be thoroughly in line with the twentieth century spirit of all great reforms—coöperation.

M. O. W.

The Audubon Conference.

The first conference of State Audubon Societies was held on the afternoon of November 15, in the Geological Lecture Room of the Museum of Comparative Zoölogy, Cambridge, Mass., delegates being present from the New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, District of Columbia and Illinois Societies.

During the week the daily sessions of the American Ornithologists' Union had drawn together a notable company, both of scientists and bird students of the novice class, the final session of the American Ornithologists' Union in the morning having been devoted to reports from the committee on bird protection and accounts of the application of the law under the Lacey bill through the splendid work of T. S. Palmer, Assistant Chief of the Biological Survey, so that the time seemed most pertinent for a meeting of the Audubon Societies.

The meeting was opened by Dr C. S. Minot, who made a brief introductory address outlining the establishment of the various state societies in general and of the Massachusetts Society in particular. Dr. Minot having been then made chairman and Mrs. H. T. Grant, Jr., secretary, the meeting was called to order.

Mr. Ralph Hoffmann spoke of the objects of the conference, of the desirability of federation, of the need for coöperative printing and of the stimulus derived from contact with other workers.

He read a letter from Mrs. Peckham, of the Wisconsin Society, telling of her work in the schools and urging the Societies to use a little publication called *By the Wayside* as a means of encouraging nature study among the younger members.

Mrs. Wright, of the Connecticut Society, spoke of the necessity of furnishing local secretaries with material to instruct and interest those of whom they sought to make members, saying that leaflets were good as far as they went, but the reading of a leaflet implied interest and that something else was often first necessary to awaken that interest. As a practical illustration of the educational methods practiced by the Connecticut Society, Mrs. Wright explained their free traveling lectures, reading the most general, 'The Birds About Home,' and showing the seventy finely colored slides that accompany it.

Mr. Frank M. Chapman spoke on 'What Can we Do for Our Members,' and citing in illustration the remarkable success which had attended the introduction of bird-study into the Chautauqua course under the supervision of Mrs. Florence Merriam Bailey, he urged that the Audubon Societies use their organization to form classes for the study of birds.

Miss Justus, of the Pennsylvania Society, told how this method had been tried in her state by the formation of six successful bird classes during the past season.

Dr. T. S. Palmer, of the District of Columbia Society, described the methods of that society in fitting nature-study teachers for their work, and made a stirring address to the Audubon Societies to work together to better the laws as well as to see that they were enforced, and to inculcate the feeling that the bird belongs not to the individual but to the state.

The lateness of the hour prevented further discussion or consideration of the subjects of Federation and Coöperation, and upon motion of Mr. Chapman, who on behalf of the New York Society and American Museum of Natural History, invited the societies to meet in New York during the American Ornithologists' Congress in November, 1901, it was decided to appoint a committee whose duty it should be to formulate plans for the federation of the societies and to report at the Audubon Congress of 1901.

Death of Mrs. Dommerich

In the death of Mrs. C. F. Dommerich, which occurred in New York city, November 9, 1900, the cause of bird protection has lost a staunch and efficient supporter, who had chosen for her field of work a state where her services were greatly needed.

It was through Mrs Dommerich's efforts that the Florida Audubon Society was formed in March, 1900. Under her leadership it promised to be an organization of more than usual influence, and it is sincerely to be hoped that in its ranks there is some one who will carry on the work which Mrs. Dommerich so successfully inaugurated.

Seizure of Gulls in Baltimore

Acting under advice received from the U. S. Biological Survey, the Game and Fish Commission of Maryland seized, in October last, 2,600 Gulls and Terns in the possession of Dumont & Co., of Baltimore. Under the provisions of the state law the birds were confiscated, no defense being made. A criminal case, to determine whether Dumont & Co. are liable to the fine imposed by the state law, of from $1 to $5 for each bird found in their possession, is still pending.

This case thoroughly aroused the wholesale feather dealers of Baltimore, who requested Dr. T. S. Palmer, of the Biological Survey, to examine their stock. As a result of this examination they promptly withdrew all prohibited feathers, including Grebes' breasts and Herons' aigrettes, and each firm made a statement to the effect that hereafter it would not deal in birds protected by state or federal law.

In this instance the state law covered the ground, but it is clearly much strengthened by the support of the Lacey bill, and it is evident that the section of this bill which makes a bird subject to the law of whatever state it chances to be in will, under Dr. Palmer's energetic administration, exert so restraining an influence on the trade in feathers that, fearing to involve their customers in legal difficulties, feather dealers will eventually abandon the use of the feathers of our native birds.

Reports of Societies

DISTRICT OF COLUMBIA SOCIETY

The annual meeting of the Society was the largest and most successful one ever held.

After the election of officers, and reports of treasurer, secretary, and committees, the secretary read a History of the Audubon Movement in America, beginning with an account of the original general Society, followed by the State Societies, in the order of their inception, and a concise history of each organization, its officers, membership, main objects, and most successful lines of work.

Mr. Harry Oberholser followed with 'Glimpses of Audubon,' an interesting talk about the famous naturalist, illustrated with a number of views of his first home in America, and pictures from his works.

Mr. Wood gave great pleasure and amusement by his clever imitations of the notes, calls and cries of "our friends in feathers and furs."

At this meeting it was announced that Mrs. George Colton Maynard's book, 'Birds of Washington and Vicinity,' had been adopted as a text-book in our public schools, 500 copies having been ordered for that purpose. A complete set of the publications up to date of each Society has been bound and placed in our free library, as well as a full set of the papers, reports, etc., of the Society in England for the Protection of Birds, very kindly given to us by its honorary secretary, Mrs. Lemon. Our collection of expensive books of reference placed in the library for the use of teachers and students grows each year, as does our membership.

One hundred bird specimens were bought, and used by individual students and by members to illustrate talks and lectures.

Classes for the study of birds were held by Dr. Palmer and Mr. Oberholser in the normal school during the spring.

In May, June and July, popular talks were given by Miss Elizabeth V. Brown

and Mr. Henry Olds, in Takoma and Garrett Park, suburbs of Washington.

In legislation we have made some progress, the Audubon Society, in coöperation with the Fish and Game Association, having prepared an amendment to the present game law, based upon the A. O. U. model bird law, and it has been favorably reported by the District Committee, both in the House and Senate. We have printed and circulated a portion of the existing District game laws.

There is no evidence, so far, of the sale in the markets of Robins as game birds, but the prevention of their sale requires eternal vigilance. Each year brings added encouragement, and we feel especially pleased that our efforts to have the study of birds hold a prominent place in the nature work of the schools has been entirely successful.

JEANIE MAURY PATTEN, *Secretary.*

The Destruction of Ptarmigan for Millinery Purposes

Our attention has been called to some unquestionably authentic, and hence unusually valuable statistics in regard to the destruction for millinery purposes of Ptarmigan or Willow Grouse in northern Russia, contained in 'A Russian Province of the North' by Alexander Platonovich Engelhardt, governor of the Province of Archangel (Lippincott, 1899).

Governor Engelhardt states that while the birds' bodies are worth about one-half a cent each, their wings bring a cent and a half a pair, and to supply the feather dealers' unlimited demands, the birds are killed in such enormous numbers that a single shipment from Archangel, on August 17, 1898, consisted of *ten tons of wings!*

Among the tables in the appendix of this volume is one giving the government's record of game killed each year, from which it would appear that the active demand for the wings of Grouse or Ptarmigan began in 1894. Thus, we learn from this table that in 1893 there were recorded as killed 117,258 Willow and Hazel Grouse, but in 1894 the number was 428,094; in 1895, 412,802; in 1896, 652,530, and in 1897, 485,332. In four years, therefore, nearly 2,000,000 Grouse were recorded as killed in the single Province of Archangel — and doubtless many more were destroyed of which no record was made.

The continued destruction of these birds at this rate means their early extermination, when the inhabitants of this comparatively barren region will have been deprived of an important source of food supply, which, properly used, should prove exhaustless.

Sentiment aside, therefore, the destruction of Grouse in northern Russia for millinery purposes, raises a question in economics of the first importance. — F. M. C.

PTARMIGAN'S WING; WINTER PLUMAGE LENGTH 7–7½ IN.

Note the short outer first feather. In the Pigeon's wing the first three feathers are of about equal length.

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BIRD-LORE for April will contain, among other papers, the following: 'Bird Study at Wellesley College,' by Marion C. Hubbard, Instructor in Zoölogy; Migration Tables for April and May, from Portland, Conn., by J. H. Sage, and from Oberlin, Ohio, by Lynds Jones; 'A New Camera for Bird Photographers,' by John Rowley; 'The Egret Hunters of Venezuela,' by George K. Cherrie.

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BIRD-LORE for June will contain, among other papers, the following: 'How to Conduct Field Classes in Bird Study,' by Florence Merriam Bailey; 'The Song Birds of Europe and America,' compared by Robert Ridgway; 'The origin of the Dickcissel' (verse), by Ernest Seton-Thompson, illustrated by the author; and 'A Kingfisher Family,' by William L. Bailey, with some unusually interesting photographs by the author.

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The most important articles in BIRD-LORE for August will be 'The Orientation of Birds,' by Capt. Gabriel Reynaud, in charge of the Homing Pigeon Service of the French Army, and 'A Study of a Lincoln's Sparrow,' by William Brewster.

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PUBLISHERS' ANNOUNCEMENT

BIRD-LORE for October will contain, among other articles of interest, the conclusion of Captain Reynaud's important paper, and a paper on 'The Bower Birds of Australia,' by Mr. A. J. Campbell, the authority on Australian birds, with photographs from nature of the wonderful structures erected by these birds.

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*** *Manuscripts intended for publication, books, etc., for review, and exchanges should be sent to the Editor at Englewood, New Jersey.*

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BIRD-LORE for December will contain, among other articles, a paper by Bradford Torrey on 'Attracting Birds About Our Homes in Winter;' An account of 'Photographing Ptarmigans on the Crests of the Rocky Mountains,' with illustrations of unusual beauty and interest, by E. R. Warren, and a description of how Ptarmigans molt, by Dr. J. Dwight, Jr.

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K. Weber

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Among the contents of BIRD-LORE for February, 1901, will be a stenographic report of an address on Audubon, delivered by Dr. Elliott Coues before the American Ornithologists' Union, in 1897; 'Pelican Island Revisited,' with numerous illustrations, by Frank M. Chapman; 'An Adirondack Lunch Counter' (illustrated), by F. A. Van Sant; the second series of articles on 'Birds and Seasons,' with suggestions for study and reading, and the BIRD-LORE'S 'Advisory Council.'

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